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SOMMAIRE

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ZOOOLOGIE

Types of Castniidae (Lepidoptera) in the Smithsonian Entomology Collection, National Museum of Natural History (Washington, D.C.)

Les types de Castniidae (Lepidoptera) dans la collection d'entomologie de la Smithsonian Institution, Muséum national d'histoire naturelle (Washington, D.C.)

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KEY-WORDS

Castniidae
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Summary: A list of types of Castniidae housed in the Entomology Collection, National Museum of Natural History in Washington, D.C., USA is provided. The specimens belonging to nine species, as well as details on current taxonomic status, type localities, known distribution, and general comments on the mentioned species, are also included. Holotypes and syntypes are figured.

MOTS-CLÉS

Castniidae
Lépidoptères
inventaire
types
Smithsonian Institution

Résumé : Une liste des types de Castniidae conservés dans la collection d'entomologie du Musée national d'histoire naturelle de Washington, DC, États-Unis est fournie. Les spécimens appartiennent à neuf espèces. Des détails sur le statut taxinomique actuel, les localités types, la répartition connue et des commentaires généraux sur les espèces mentionnées sont inclus. Les holotypes et les syntypes sont figurés.

PALABRAS CLAVES

Castniidae
Taladradores gigantes
inventario
tipos
Instituto Smithsoniano

Resumen : Se proporciona una lista de los tipos de Castniidae alojados en la colección entomológica del Museo Nacional de Historia Natural de Washington D.C., EE. UU. Se incluyen los ejemplares pertenecientes a nueve especies, así como detalles sobre su estado taxonómico actual, localidades tipo, distribución conocida y comentarios generales sobre las especies mencionadas. Se incluyen fotografías de los holotipos y sintipos presentes en el Museo.

Introduction

As of 2023, of over 150.000 species assessed, 42.108 are considered to be at risk of extinction, and the loss of species has been recently estimated to be between 1.000 and 10.000 times higher than the natural extinction rate (Almond *et al.*, 2022; IUCN, 2023). Thus, the preservation of biological collections in museums worldwide is necessary and part of the key to understanding biodiversity, since such institutions are preserving critical information about past and present organisms (Buerki *et al.*, 2015; Drew *et al.*, 2017; González, 2023). Information on biodiversity found in museums is relevant to the study of taxonomy, evolution, conservation, and even sustainable livelihoods (Drew *et al.*, 2017). Even though it seems that the emphasis on preserving organisms has diminished recently, the advances in technology, such as highly developed computing systems and newer molecular techniques are helping museums to overcome shortcomings, allowing easier access to their preserved

materials to researchers worldwide (Buerki *et al.*, 2015; Cho *et al.*, 2015; Drew *et al.*, 2017; Rohwer *et al.*, 2022; González, 2023).

The U.S. National Insect Collection, also known as the Entomology Collection (EC) of the National Museum of Natural History (NMNH) in Washington, D.C., USA, is part of the world's largest complex of museums, education, and research centers of the Smithsonian Institution (Lesso, 2022). The EC is said to be one of the largest entomological collections in the world, with over 35 million specimens (NMNH, s.d.).

Being such a large and important collection, the EC contains numerous vouchers, primary types, allotypes, and paratypes, which have been deposited in it since the collection started (Mallis, 1971; Conner Sorensen *et al.*, 2018). The United States National Museum, the precursor of today's NMNH, was created in 1842, four years before the foundation of the Smithsonian Institution. It did not have an Insect Collection. Then, the National Insect Collection (NIC) was kept by the Patents Office until the US Department of Agriculture (USDA) was formed, after hiring the entomologist Townend Glover (1813-1883) as Chief Entomologist. Only after that, the USDA became responsible for the NIC. Once the appointed Chief Entomologist retired in 1877, Charles Valentine Riley (1843-1895), one of the first entomologists to practice biological pest control, who largely "contributed to insect ecology, economic entomology, and insect systematics and taxonomy," filled that position but resigned in 1879, only to be replaced by John Henry Comstock (1849-1931) (Essig, 1931; Mallis, 1971; Hagen & Franz, 1973; Miller *et al.*, 2022). Riley would be later reinstated as Chief Entomologist, and also appointed Honorary Curator of the then-created Division of Insects at the United States National Museum (USNM) (Essig, 1931; Mallis, 1971; Conner Sorensen *et al.*, 2018).

During its earlier years, the Smithsonian Institution, due to limited funding, allowed its insect collection to be distributed among its collaborating scientists. But by the 1870s, and after Riley became appointed Honorary Curator, the USDA became the repository of the Smithsonian Insect Collection (Essig, 1931; Mallis, 1971; Conner Sorensen *et al.*, 2018). Eventually, Riley's collection together with the USDA's and Smithsonian Institution's holdings became the "nucleus" of the current EC (Conner Sorensen et al., 2018; Miller *et al.*, 2022).

Among the millions of Lepidoptera holdings, the EC has an awe-inspiring Castniidae collection. Ten type specimens belonging to nine castniid species are deposited in NMNH. Six of them were described by William Schaus (1858-1942), while Harrison Gray Dyar Jr. (1866-1929) described the other three. Dyar was a brilliant entomologist who excelled in the taxonomy of Lepidoptera and Diptera, most particularly mosquitoes (Culicidae) (Mallis, 1971). He did a great deal of work on the life histories of caterpillars and described butterflies, moths, and mosquitoes. Even though he was on the rolls of the Bureau of Entomology for a few years, he was never paid for his work while associated with the EC (Essig, 1931; Mallis, 1971). Schaus, widely known for his major contribution to the knowledge of Neotropical moths and butterflies, worked for some 40 years to organize the vast collection of tropical Lepidoptera of the NMNH (Mallis, 1971).

Several publications have dealt with Castniidae types deposited in museums, providing light not only on the relevance of such museums and collections but also clarifying information on the whereabouts, characteristics, and even the systematics and biology or ecology of such specimens (Mielke & Casagrande, 1986, 1988a, 1988b, 1999; Lamas, 1995b; Rodríguez-Ramírez *et al.*, 2020; González, 2023).

Material and methods

The Castniidae specimens preserved in the Entomology Collection, National Museum of Natural History in Washington, D.C., USA (NMNH) have been revised, studied, and photographed.

Information for each taxon includes original name, author, year, including sex, and original label information and publication where described. The different labels included with each specimen are indicated by a slash "/" and labels attached to each specimen are figured (**Plates 1 & 2**). A semi-colon ";" separates the set of labels from one specimen to the next. If sex is not mentioned in any of the labels of the type specimen, it will appear first in square brackets. Also included are the type status, type locality, and the known distribution of each species. Current status, including references related to status changes, are also provided.

Additions to the label information are added in brackets. Any remarks are also included in brackets. Some general comments are also

provided. Taxa are listed alphabetically by genera and species. The classification mainly follows Moraes & Duarte (2014). However, the treatment of some of the listed species might be modified based on Miller (1995), Lamas (1995a), Worthy *et al.* (2019, 2022), González *et al.* (2021), García-Díaz (2022), García-Díaz *et al.* (2022), Costa *et al.* (2023).

All images were taken using a Canon Digital Rebel XSi 12.2 MP, with a Canon Zoom lens EF-S 18-55 mm 1:3.5-5.6 II, with a Polarizing filter.

Details of each publication associated with the species discussed can be found in the References section.

Type material of Castniidae in the Entomological Collection at the NMNH consists mainly of single specimens (except for *Athis delecta*). No other museums have type material of the species listed herein, except for the Natural History Museum, London, England (NHMUK) which has a female Syntype of *Castnia drucei* (= *Telchin atymnius drucei*).

Type specimens of Castniidae in the Entomological Collection at NMNH

Castnia corrupta SCHAUS, 1896 (Plate 1, figs. A & B)

Type material (label information): SYNTYPE: [♂], Colombia / Castnia corrupta type Schs [Schaus] / Collection WmSchaus [William Schaus] / Type No: 12553 U.S.N.M. / USNMENT 01244439.
Type locality: Colombia. Schaus (1896; and type labels) does not provide further information on locality, thus it cannot be restricted further.
Current Status: *Castnia corrupta* is a junior subjective synonym of ***Vadina hodeei hodeei* (Oberthür, 1881)** (Lamas, 1995; Miller, 1995; Worthy *et al.*, 2022). The genus *Amauta* Houlbert was synonymized with *Telchin* Hübner, [1825] by Moraes & Duarte (2014). It was later reinstated, and the species *Amauta hodeei* (= *Castnia corrupta*) was removed from the genus *Amauta* and is considered the type species of the genus *Vadina* Worthy, González & Zilli, 2022 (Worthy *et al.*, 2022).
Other Type material: Only one specimen is deposited at the NMNH, it is best regarded as a holotype by monotypy.
Distribution: *Vadina hodeei* seems to be a rare species, and it has been recorded from Bolívar, Santander, Boyacá, and Cundinamarca departments (González *et al.*, 2013; Worthy *et al.*, 2022). Even though a specimen has been recorded from Valle del Cauca, it is probably a doubtful locality (González *et al.*, 2013; Worthy *et al.*, 2022).
Comments: The subspecies *Vadina hodeei hodeei* (of which *C. corrupta* is a synonym) appears to be rare (Worthy *et al.*, 2022). Most known specimens of this subspecies are from the Eastern slopes of the Western Cordillera of Colombia, being replaced by *V. hodeei kruegeri* (Niepelt, 1927) on the western slopes of that mountain range and in western Ecuador (González *et al.*, 2013; Worthy *et al.*, 2022).

Castnia delecta SCHAUS, 1911 (Plate 1, figs. C to F)

Type material (label information): SYNTYPE: ♂ / Castnia delecta, Type ♂, Schs [Schaus] / Esperanza, C.R. [Costa Rica] / May / Slide No 570, ♂ genitalia, Lee D. Miller / Type 12166 U.S.N.M. / USNMENT 01244444; SYNTYPE: ♀ / Castnia delecta, type ♀, Schs / Cordoba, Mex. [Mexico] / May / Collection WmSchaus [William Schaus] / USNMENT 0144445.
Type locality: Esperanza, Cartago Province, Costa Rica; Córdoba, Veracruz, Mexico.
Current status: Synonym of ***Athis delecta* (Schaus, 1911)** (Lamas, 1995; Miller, 1995).
Other type material: Both syntypes are in NMNH.
Distribution: Costa Rica north to Mexico. It has been reported/observed in Mexico, Honduras, Guatemala, and Costa Rica (Schaus, 1911; Miller, 2000; González, 2008; González & Hernández-Baz, 2012; Karla Fiallos-Yánez, Santa Cruz de Yojoa, Cortés, Honduras, 25.vii.2022, https://www.inaturalist.org/taxa/257878-Athis-delecta)
Comments: The species seems to have a wide distribution throughout Central America, at least from Costa Rica to Mexico, however, it appears to be a rare species and has not been recorded from countries other than those above.

Castnia drucei SCHAUS, 1911 (Plate 1, figs G & H)

Type material (label information): SYNTYPE: [♂] /Castnia drucei type Schs [Schaus] / Rio Grande, C.R.[Costa Rica] Dec.[December] / [19]08, Type No. 11165 U.S.N.M.
Type locality: Rio Grande [= Río Grande de Orosi, Cartago], Guapiles [= Guápiles, Limón],

San Geronimo [= San Jerónimo, Alajuela], and Avangarez [= Abangares, Guanacaste], Costa Rica.

Current Status: Synonym of ***Telchin atymnius drucei* (Schaus, 1911)** (Lamas, 1995; Moraes & Duarte, 2009).

Other Type material: A female syntype is in NHMUK (Labels with the specimen: Castnia drucei Schs / May / Guapiles CR. At the moment of working on this note, the specimen lacked a label stating that this was the other type mentioned in Schaus (1911). [He probably described/published the new species after sending it to the British Museum for ID or comparison, not notifying them that this was also a type once his work was published.]

Distribution: Costa Rica and Panama. Possibly other countries north of Costa Rica also. It has been also reported from Northeastern South America and Brazil, however, the South American records possibly refer to more reddish *T. a. humboldti* (Boisduval, [1875]) or are mislabeled (González & Salazar, 2003; Chacón & Montero, 2007; González *et al.*, 2010; González & Domagała, 2019; van den Berghe *et al.*, 2020).

Comments: While working on the Castniidae at EC back in 2003 I noticed that this specimen was a type (it included a Type label) but was in the general collection, and not with the other types. I placed a handwritten note by it reading "Castnia drucei Schaus, 1911 TYPE (actual name: Castniomera atymnius drucei (Schauss, 1911), det. J.M. González. Should be in Type coll." (not shown in plate 1). Recently, the specimen was finally placed in the Type collection, but the handwritten label has been attached to it. The species seems to be naturally associated with plant species in the genus *Heliconia* (Heliconiaceae), but has also been found attacking Sugar Cane (*Sacharum officinarum* L.: Poaceae) (Cadet-Piedra *et al.*, 2015; LAICA, 2016, 2017; Salazar-Blanco *et al.*, 2018).

Castnia govara SCHAUS, 1896 (Plate 1, figs. I & J)

Type material (label information): SYNTYPE: ♂ / Colombia / Castnia veraguana ♂, or Castnia govara Sch type / Collection WmSchaus [William Schaus] / Type No. 12552 U.S.N.M. / USNMENT 01244440.

Type locality: Colombia. No more details on the locality were provided by Schaus (1896; and Type specimen labels).

Current Status: Synonym of ***Corybantes veraguana govara* (Schaus, 1896)** (Lamas, 1995; Miller, 1995).

Other Type material: Only one syntype is deposited in NMNH. However, Schaus (1896) wrote "…my specimens…", thus he must have examined more than one individual (syntypes). Interestingly, he didn't mention the lack of the discal row of red spots on the HW above, which differentiates *govara* from *veraguana*, however, based on what he wrote he wasn't completely convinced this was a separate species (Schaus, 1896; G. Lamas, pers. comm.)

Distribution: It has been recorded from San José del Guaviare, and "west of Boyacá" (Apolinar María, 1915; Salazar, 1999).

Comments: Schaus (1896) originally described *C. govara* from Colombia, and separated it from *C. veraguana* based on the wing markings. Both are currently considered subspecies of *Corybantes veraguana* (Lamas, 1995a; Miller, 1995; Moraes & Duarte, 2014; Maes & González, 2022).

Castnia gramivora SCHAUS, 1896 (Plate 2, figs. A & B)

Type material (label information): SYNTYPE: [♂] / Castnia gramivora Type Schs [Schaus] / Sâo Paulo / Sâo Paulo S.E. Brazil. / Collection WmSchaus [William Schaus] / Type No. 12537 U.S.N.M. / USNMENT 01244443.

Type locality: Sâo Paulo, Brazil.

Current status: Synonym of ***Telchin gramivora* (Schaus, 1896)** (Moraes & Duarte, 2014).

Other type material: Described from only one male specimen, and is best regarded as a holotype by monotypy. Schaus (1896) does not mention the sex of the specimen.

Distribution: Sâo Paulo and Paraná (South Eastern Brasil), Alto Paraná (Paraguay) (Schaus, 1896; Miller, 1986; Ríos & González, 2011).

Comments: Schaus (1896) mentions that the collector (Edward Dukinfield Jones) who sent him the specimen he described, found it "…flying in the grasses after the manner of certain Noctuidae." Originally placed in the genus *Frostetola* (after Oiticica, 1955) it was dumped in *Telchin* like other genera now reinstated (Moraes & Duarte, 2014; Worthy *et al.*, 2021). This species is very different morphologically from other *Telchin* species, and should probably be in its own genus. However, since the species is rare in the field and scarce in collections, a thorough morphological and genetic study of a larger number of specimens
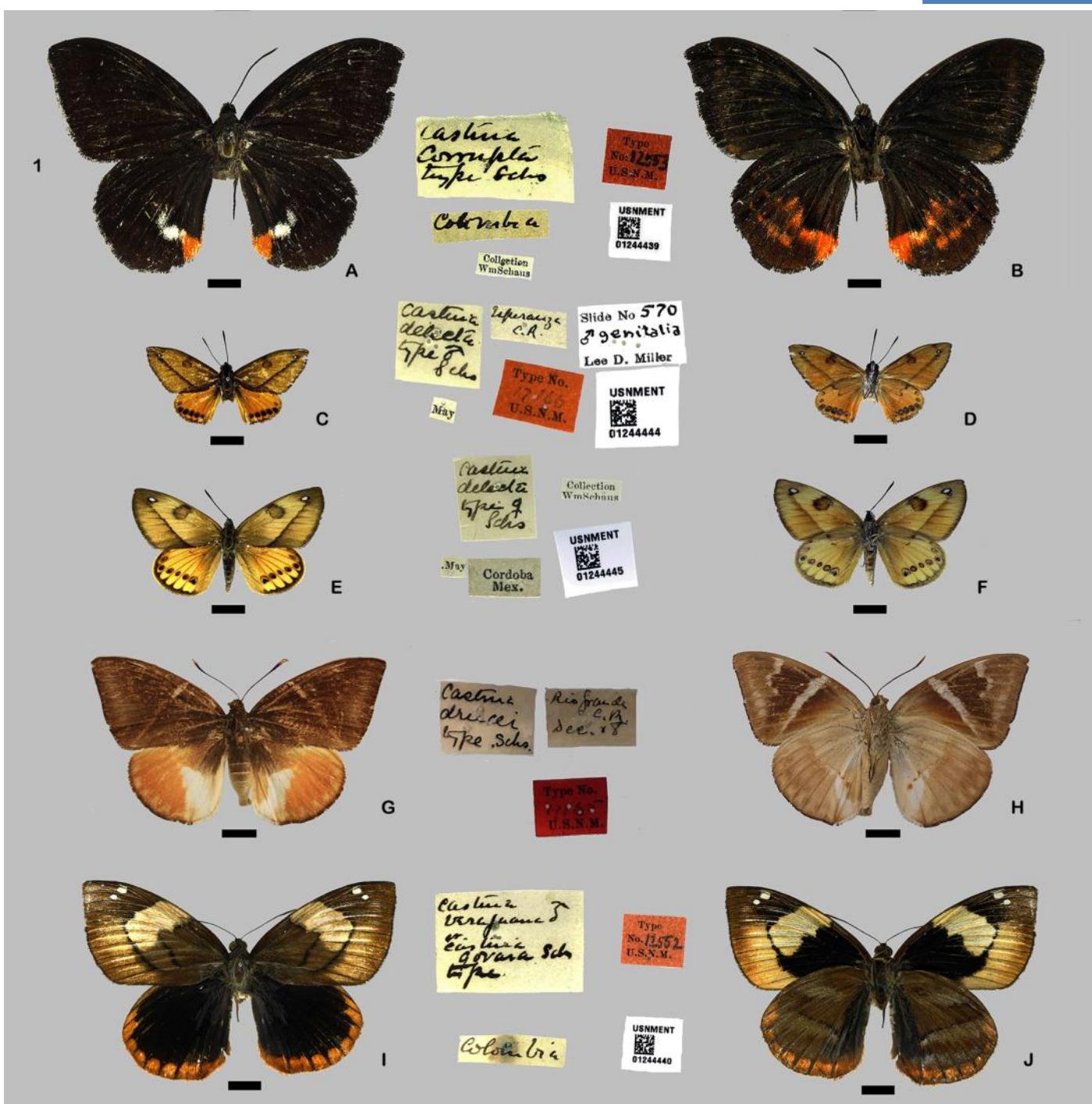
Plate 1. Figs. A & B. ♂, *Vadina hodeei*, Colombia (Syntype: *Castnia corrupta*); **Figs. C & D.** ♂, *Athis delecta*, Costa Rica (Syntype: *Castnia delecta*); **Figs. E & F.** ♀, *Athis delecta*, Mexico (Syntype: *Castnia delecta*); **Figs. G & H.** ♂, *Telchin atymnius drucei*, Costa Rica (Syntype: *Castnia drucei*); **Figs. I & J.** ♂, *Corybantes veraguana govara*, Colombia (Syntype: *Castnia govara*). (Scale: 1 cm; Labels not in scale)

is needed to shed better light and help assess to which genus it belongs.

Castnia hechtiae DYAR, 1910 (Plate 2, figs. C & D)

Type material (label information): HOLOTYPE: [♂] / Castnia hechtiae Type Dyar / Tehuacan mex [Mexico] / On Hechtia / R Muller Collector / June [19]09 / 2102 / Type No. 13038 U.S.N.M. / USNMENT 01244442.

Type locality: Tehuacán, Puebla, Mexico.

Current status: Synonym of ***Athis hechtiae* (Dyar, 1910)** (Lamas, 1995; González *et al.*, 2021).

Other type material: Only the Holotype (by monotypy) is in NMNH.

Distribution: This species seems to be endemic to the Tehuacán-Cuicatlán Valley, in Puebla and Oaxaca, Mexico (González *et al.*, 2021; García-Díaz *et al.*, 2022)

Comments: Dyar (1910) described it originally from Tehuacán, but once the species *Athis miastagma* (Dyar, 1925) was synonymized under *A. hechtiae* by Lamas (1995), the distribution of the species included several states and ecological regions in Mexico. However, a subsequent detailed analysis that included

morphology, genetics, and an in-depth study of the natural history of both taxa, concluded that they were different species and that *A. hechtiae* was restricted to the Tehuacán-Cuicatlán Valley in Puebla (González *et al.*, 2021). Since three specimens identified as *A. hechtiae* and examined by González *et al.* (2021) were found to have labels stating they were from other Mexican States, the consensus was that they were labeled incorrectly or the localities were very doubtful (González *et al.*, 2021; García-Díaz *et al.*, 2022).

This species is tightly associated with *Hechtia tehuacana* B.L. Robinson (Bromeliaceae), an endemic plant from the Tehuacán-Cuicatlán Valley (González *et al.*, 2021; García-Díaz *et al.*, 2022).

Castnia miastagma DYAR, 1925 (Plate 2, figs. E & F)

Type material (label information): HOLOTYPE: [♂] [Dyar (1925) mentions it as a female] / miastagma Dyar / Guerrero, Mex.[ico], May, R.Müller, 3523 / Type No. 27905 U.S.N.M. / USNMENT 01244446. [The abdomen of the specimen is lacking and a slide exists at NMNH labeled "Castnia miastagma dissection," showing a broken aedeagus and a dextral dorsal view of the genitalic capsule, including a broken valva and a partially broken saccus.]
Type locality: Guerrero, Mexico.
Current status: Synonym of ***Athis miastagma* (Dyar, 1925)** (González *et al.*, 2021; García-Díaz *et al.*, 2022).
Other type material: Best regarded as a holotype by monotypy. Lamas (1995) sunk *A. miastagma* under *A. hechtiae*, which was considered valid until the early 2020s (Miller, 2000; González, 2008; Moraes & Duarte, 2014). A comprehensive work that included not only morphology but also natural history and molecular information helped reinstate it as a valid species (González *et al.*, 2021). Soon after, García-Díaz *et al.* (2022) described two subspecies of *miastagma*, the nominal one, and *A. miastagma gonzalezi* López-Godínez, García-Diaz & Turrent-Carriles, 2022.
Distribution: Colima, Guerrero, Jalisco, Michoacán, and Morelos States, Mexico.
Comments: The type specimen is very curious. The right forewing and the upper part of the hindwing seem to be "washed" and the colors are not as sharp as in the left wings, and the lower part of the right hindwing (**Plate 2, figs. E & F**). Was this natural? No one seems to have a good idea of this.

Dyar (1925) separated *C. miastagma* (=*A. miastagma*) from *C. hechtiae* (=*A. hechtiae*), but more recently García-Díaz *et al.* (2022) identified two subspecies of *A. miastagma*. The nominal subspecies is distributed in Guerrero, Morelos, and Oaxaca in low deciduous forests within the Balsas River Basin and their larvae feed on an unidentified bromeliad in the genus *Hechtia* (Bromeliaceae). The subspecies *A. m. gonzalezi* is also found in low deciduous forests but outside the Balsas River Basin in the states of Colima and Jalisco (García-Díaz *et al.*, 2022). The latter authors found that the larvae of this subspecies feed on two different, but related, species of *Hechtia* (Bromeliaceae), *H. santanae* Ramírez & Carrillo, 2016, in Jalisco, and *H. laevis* L.B. Smith, 1964, in Colima.

Castnia thysanete DYAR, 1912 (Plate 2, figs. G & H)

Type material (label information): HOLOTYPE: [♂] [As in the previous species, Dyar (1912) stated this type is a female], Castnia thysanete Type Dyar / Tehuacan, Mex.[ico] / June [19]10 / R. Muller Collector / 2438 / Slide No. M-3253 legs Jacqueline Y. Miller / Type No. 14031 U.S.N.M. / USNMENT 01244441.
Type locality: Tehuacán, Puebla, Mexico.
Current status: Synonym of ***Athis thysanete* (Dyar, 1912)** (Lamas, 1995; García-Diaz, 2022).
Other type material: Described from only one specimen, a holotype by monotypy.
Distribution: Tehuacán-Cuicatlán Valley, which extends from Puebla to Oaxaca, Mexico.
Comments: Previous to the publication of the work by García-Diaz (2022), not much was known about *Athis thysanete*, even though a first approximation to some ecological and behavioral information was presented by Vinciguerra *et al.* (2011). Most specimens known to date, and placed in different insect collections (see Vinciguerra *et al.*, 2011; García-Diaz *et al.*, 2022) have been located, however, some of the specimens seem to have been collected outside of the biogeographically distinct Tehuacán-Cuicatlán Valley; those specimens were possibly vagrants or mislabeled material (Vinciguerra *et al.*, 2011; García-Diaz, 2022). So far, nothing is known about the host of this species. Vinciguerra *et al.* (2011) mention that several of the specimens of *A. thysanete* known to them were collected in or around Yucca tree forests, commonly known as "Izotales" in the region. The authors mention that the latter group of plants is associated with

Plate 2. Figs. A & B. ♂, *Telchin gramivora*, Brazil (Syntype: *Castnia gramivora*); **Figs. C & D.** ♂, *Athis hechtiae*, Mexico (Holotype: *Castnia hechtiae*); **Figs. E & F.** ♂, *Athis miastagma*, Mexico (Holotype: *Castnia miastagma*); **Figs. G & H.** ♂, *Athis thysanete*, Mexico (Holotype: *Castnia thysanete*); **Figs. I & J.** ♂, *Prometheus zagraea carilla*, Costa Rica (Syntype: *Gazera carilla*). (Scale: 1 cm. Labels not in scale)

other monocots (i.e. Bromeliaceae) which could be possible hosts of the castniid. However, García-Díaz (2022), misinterpreted that information assuming the authors were suggesting Yucca plants forming those Izotales are hosts of the castniid. Curiously, García-Díaz *et al.* (2022) speculate that another bromeliad (possibly in the genus *Tillandsia*) could be the host of *A. thysanete* because they are hosts of other *Athis* species (see González & Fernández Yépez, 1992; González, 2004). *Athis hechtiae* and *A. thysanete* are endemic species of a vulnerable region with very specific biogeographical conditions, making them (and other endemic species of the region) especially vulnerable (García-Díaz, 2022).

Gazera carilla SCHAUS, 1911 (Plate 2, figs. I & J)

Type material (label information): SYNTYPE: [♂], Gazera carilla Type Schs. / Carillo C.R. [Costa Rica] / May / Type No. 17167 U.S.N.M. / USNMENT 01244438.

Type locality: “Carillo” [= Carrillo, Limón], Costa Rica.

Current status: A junior subjective synonym of ***Prometheus zagraea salvina* (Westwood, 1877)** (Lamas, 1995; Moraes & Duarte, 2014).

Other type material: Only one specimen was used as type and should be best regarded as a holotype by monotypy.

Distribution: The subspecies *P. z. salvina*

(= *G. carilla*) is known from Nicaragua, Costa Rica, and Panama (Miller, 1986, 1995; Lamas 1995a; Vinciguerra, 2008; González *et al*., 2010; Domagała *et al*., 2017a, 2017b; van den Berghe *et al*., 2020; Maes & González, 2022). Salazar *et al*. (2013) reported the subspecies from Colombia, without illustrating the specimen. However, Colombian specimens almost certainly belong to *P. z. zagraea*, not to *P. z. salvina* (Maes & González, 2022).

Comments: This taxon, like others with a "tiger pattern" in Castniidae, fly similarly to heliconiid butterflies during sunny days and seem to be part of mimetic rings that include *Chetone angulosa* (Walker, 1854) (Erebidae), *Lycorea halia atergatis* Doubleday, 1847, *Mechanitis polymnia* (L., 1758), *Eueides isabella* (Stoll, 1781), *Heliconius ismenius* Latreille, [1817] and *Consul fabius cecrops* (Doubleday, [1849]) (Nymphalidae), as they all fly together in the same areas (Miller, 1986; van den Berghe *et al*., 2020). Even though this taxon is currently placed in the genus *Prometheus*, after Moraes & Duarte (2014), a thorough revision (Worthy & González, in prep.) might tell otherwise.

Conclusion

Museums are pivotal in the study of biodiversity since they contain collections of biological specimens, not only from our present but also from past times. Technology advances have helped museums prevail over the decline in the number of specimens being added to these collections. The Entomology Collection of the National Museum of Natural History, Smithsonian Institution, in Washington, D.C., USA (NMNH) has a formidable collection of insects, one of the largest collections of butterflies and moths in the world. Among the numerous holdings of Lepidoptera, the NMNH includes a significant Castniidae collection that contains holotypes and syntypes of nine species. All of them are presented herein, with comments on those types in the NMNH and information about their origin, distribution, and other relevant details.

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ZOOLOGIE

Catalogue des Dysphania (Lepidoptera, Geometridae) du musée des Confluences (Lyon)

Catalogue of Dysphania (Lepidoptera, Geometridae) of the musée des Confluences (Lyon)

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MOTS-CLÉS

Dysphania
Geometridae
inventaire
musée des Confluences
Lyon

KEY-WORDS

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Résumé : Nous présentons une liste des papillons appartenant au genre *Dysphania* préservés dans les collections du musée des Confluences à Lyon. Ce catalogue a permis de recenser 18 espèces, pour un total de 114 spécimens.

Summary: We present a list of moths belonging to the *Dysphania* genus housed in the collections of the Musée des Confluences in Lyon. This catalogue comprises 18 species, totalling 114 specimens.

Introduction

Dans la continuité des travaux précédents (Audibert & Labrique, 2021 ; Labrique & Audibert, 2021), nous présentons un catalogue des *Dysphania* (Lepidoptera, Geometridae) présents dans les collections du Musée des Confluences à Lyon.

Le genre *Dysphania* Hubner, 1819 appartient à la sous-famille des Geometrinae (Ban *et al.*, 2018 ; Plotkin & Kawahara, 2020). Le genre rassemble 84 taxons (espèces et sous-espèces) (Scoble, 1999 ; Inoue, 2007). Un certain nombre de sous-espèces sont, depuis ce travail, considérées comme de simples synonymes. Ce sont des papillons de taille moyenne, pour la plupart vivement colorés, et généralement actifs aussi bien de jour que de nuit. Ils sont strictement localisés dans la région Orientale et, plus précisément, se rencontrent depuis la Chine, au nord, jusqu'en Australie, au Sud. Ils sont particulièrement diversifiés dans la région malayo-indonésienne. Beaucoup d'espèces ont des couleurs vives et aposématiques et sont mimétiques de Zygaenidae Chalcosiinae (mimétisme batésien) ou d'autres Geometridae Ennominae, notamment les genres Praesos et Callhistia (mimétisme müllérien) (**Fig. 1**).

Fig. 1. *Callhistia angelus* (en haut) et *Dysphania tentans* (en bas), tous deux de Fak Fak, Indonésie. Photos musée des Confluences.
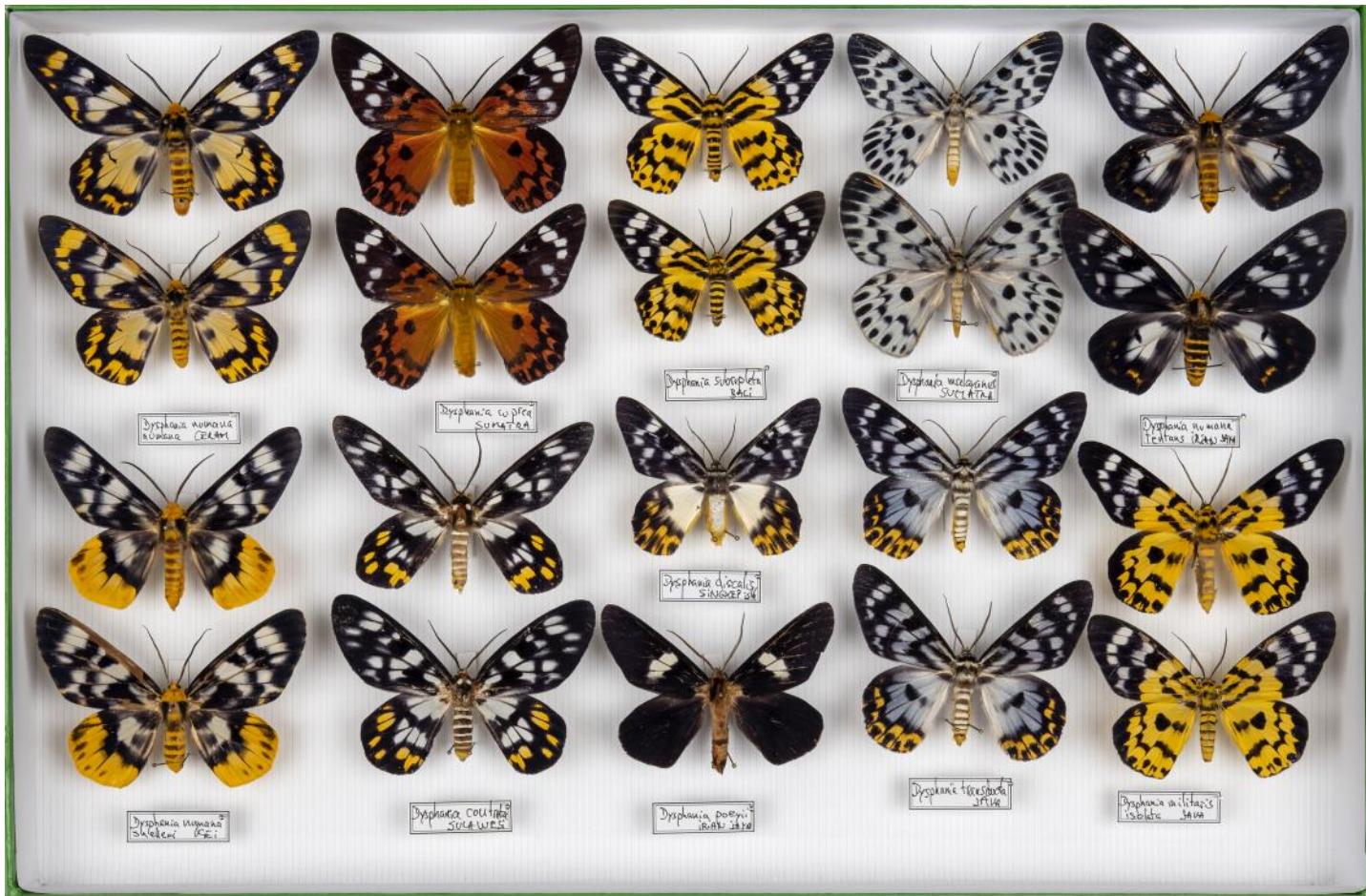
Fig. 2. Une boîte de *Dysphania* de la collection Porion, n°4619357. Photo Olivier Garcin, musée des Confluences.

L'ensemble des collections du musée a été passé en revue ; les plus riches sont celles de Guy Sircoulomb, de Thierry Porion (**Fig. 2**) et de Jean Poulard :

- la première est la plus importante collection de Geometridae du musée et comprend du matériel d'Afrique, du Paléarctique et de la région orientale. Les *Dysphania* sont représentés par 68 spécimens dans deux grands cartons entomologiques ;

- la série rassemblée par T. Porion comprend 20 spécimens dans un carton format standard.

- le matériel rassemblé par J. Poulard a été collecté à l'occasion de plusieurs voyages en Asie ; la majorité des exemplaires ont été pris par lui-même.

S'ajoutent quelques exemplaires disséminés dans quelques autres collections. C'est un genre globalement peu représenté et bon nombre de collections n'en possèdent aucun.

Matériel et méthode

Pour les identifications, nous avons utilisé l'ouvrage de Seitz (1907), ainsi que ceux de Barlow (1982) et d'Holloway (1996), complétés avec différents articles, en particulier ceux de Yazaki (1989) et Kemal *et al.* (2019), ainsi que différents sites Internet (voir liste en bibliographie). Pour la liste des espèces, nous avons suivi la nomenclature de Scoble (1999) mais n'avons pas toujours suivi le découpage en sous-espèces.

La méthodologie de l'inventaire des spécimens est la même que celle déjà utilisée pour les précédents catalogues. Les noms donnés dans la rubrique « Anc. dénom. » correspondent aux noms rencontrés dans les collections : il peut s'agir indifféremment d'un nom erroné, d'un synonyme, de l'émendation d'un nom valide, etc.

<u>Abréviations des principales collections</u> :

CD : Claude Dufay ;

EB : Etienne Berjot ;

EL : Eugène Le Moult ;

GS : Guy Sircoulomb ;

JP : Jean Poulard ;

TP : Thierry Porion.

Les collecteurs sont donnés en clair.

Catalogue des *Dysphania* Hubner, 1819 du musée des Confluences

Dysphania auroguttata Warren, 1902

47029411/13 – Indonésie, Ile de Peleng (Banggai Isl.), 03.2008, GS, 3 ex.

Dysphania bivexillata Prout, 1912

47029458 – Malaisie, Pt Swettenham [= Port Klang], 02.1964, EL, 1 ex.

Dysphania contraria (Walker, 1865)

47029402/03 – Indonésie, [île de] Buton, 07.2003, GS, 2 ex.

47029404/06/09 – Indonésie, [île de] Buton, 09.2007, GS, 3 ex.

47029405 – Indonésie, [île de] Buton, 01.2008, GS, 1 ex.

47029406 – Indonésie, [île de] Buton, 09.2007, GS, 1 ex.

47029407/08 – Indonésie, Sulawesi, Bantimurung, 02.2012, GS, 2 ex.

47029410 – Indonésie, Amboine, 04.2007, GS, 1 ex.

47038424/25 – Indonésie, Sulawesi, [île de] Buton, 03.2009, TP, 2 ex.

Dysphania cuprina (Felder, 1874)

Anc. dénom. : *Dysphania cuprea*, *D. interrupta*

47029386/87/89 – Indonésie, Sumatra, Mont Sanggul, 1250 m, 06.2006, GS, 2 ex.

47038422/23 – Indonésie, N. Sumatra, Mt Sibuatan, 05.2009, TP, 2 ex.

Dysphania discalis (Walker, 1854)

47038428 – Indonésie, île Singkep, 11.1998, coll. Alain Chaminade, TP, 1 ex.

Dysphania glaucescens glaucescens (Walker, 1862)

47029373/75 – Malaisie, Bornéo, Île Karimata, 07/08.1990, GS, 3 ex.

47029438 – Indonésie, W. Sumatra, Lembah Anai, 4.08.1973, J. Poulard, JP, 1 ex.

Dysphania latiplaga Warren, 1902

47029398/401 – Indonésie, C. Sulawesi, Palu Palolo, 12.1989, GS, 4 ex.

Dysphania malayanus (Guérin-Méneville, 1863)

Anc. dénom. : *Dysphania recessa*, *D. transducta*

47029388 – Indonésie, Sumatra, W. Sumatra, Harau Valley, 09.2005, GS, 1 ex.

47029394 – Philippines, Palawan, Irawan, 50 m, 03.11.1997, Jan Steve Petersen & Klaus-Rüdiger Beck, GS, 1 ex.

47029433/34 – Malaisie, Sarawak, Niah, 18.08.1977, J. Poulard, JP, 2 ex.

47029435 – Malaisie, Sabah, Tataluan, Sapulut River, L.H. [long home], 19 08.1987, J. Poulard, JP, 1 ex.

47029436 – Indonésie, N. Sumatra, Sibolga, 27.07.1973, J. Poulard, JP, 1 ex.

47029437 – Indonésie, N. Sumatra, Parapat, 24.07.1973, J. Poulard, JP, 1 ex.

47029448 – Indonésie, N. Sumatra, Parapat, [route de] Siantar, km 20, 24.07.1973, J. Poulard, JP, 1 ex.

47038430 – Indonésie, N. Sumatra, Sibuatan (Mt), 05.2009, TP, 1 ex.

47038431 – Indonésie, O. Sumatra, Harau [Valley], 05.2006, TP, 1 ex.

Dysphania militaris (Linnaeus, 1758)

Anc. dénom. : *Dysphania sagana isolata*, *D. militaris* f. *nigromarginata*

47029377 – Laos, [Hua Phan], Mt Phan, 2060 m, 08.2007, GS, 1 ex.

47029378 – Sans localité, 04.2010, GS, 1 ex.

47029379 – Indonésie, Java, Banyowangi, 06.2003, GS, 1 ex.

47029380 – Laos, Nam Ha, 800 m, 07.2001, GS, 1 ex.

47029381 – Thaïlande, Chiang Mai, 2002, GS, 1 ex.

47029382/83 – Indonésie, Java oriental, Blitar, 09.2007, GS, 2 ex.

47029384/85 – Indonésie, Java oriental, Blitar, 02.2008, GS, 2 ex.

47029443 – Thaïlande, Hua Dong, 20.10.1982, J. Poulard, JP, 1 ex.

47029444 – Thaïlande, Nakhon Sawan, 26.07.1981, J. Poulard, JP, 1 ex.

47029445 – Thaïlande, Hua Dong, 09.09.1979, J. Poulard, JP, 1 ex.

47029449 – Laos, Vientiane, 10. 1956, EB, 1 ex.

47029450 – Laos, Vientiane, 02.1957, EB, 1 ex.

47029451 – Vietnam, Hanoi, EB, 1 ex.

47029454 – Sans localité, coll. Société linnéenne de Lyon, 1 ex.

47029455 – Thaïlande, Hua Dong, 17.06.1981, JP, 1 ex.

47038436 – Indonésie, E. Java, Blitar, 09.2007, TP, 1 ex.

47038437 – Indonésie, E. Java, Mt Kawi, 05.2002, TP, 1 ex.

47039722 – Inde, Khasi Hills, 1960, coll. Dr. Prost, 1 ex.

Dysphania minervaria minervaria
(Guenée, 1858)

47029391/93 – Cambodge, Kirirum [Kirirom], Sre Khlong, 720 m, 04/12.12.2001, V. Kosov & L. Chernyshev, GS, 3 ex.

Dysphania numana numana (Cramer, 1779)

47029421/23 – Indonésie, Moluques, île de Seram [Ceram], GS, 3 ex.

47038418/19 – Indonésie, [île de] Seram [Ceram], 01.2009, TP, 2 ex.

Dysphania percota (Swinhoe, 1891)

47029456/57 – [Inde], CD, 2 ex.

Dysphania poeyii poeyii
(Guérin-Méneville, 1838)

47029395 – Indonésie, W. Irian [Papua], Fak Fak, 08.2005, GS, 1 ex.

***Dysphania poeyii* spp.**

Anc. dénom. : *Dysphania poeyii remota*

47029396/97 – Indonésie, Papouasie (Irian Jaya), Nabire, 08.2005, GS, 2 ex.

47038429 – Indonésie, Moluques, [île de] Seram [Ceram], 01.2009, TP, 1 ex.

Dysphania sagana (Druce, 1883)

47029446 – Cambodge, Kep, 12.09.1972, F. Hildebrand, JP, 1 ex.

47029447 – Cambodge, Kep, 25.09.1971, F. Hildebrand, JP, 1 ex.

Dysphania snelleni (Pagenstecher, 1886)

Anc. dénom. : *Dysphania numana snelleni*

47029414 et 16 – Indonésie, île Moa [Pulau Moa], 2001, GS, 2 ex.

47029415 et 17/19 – Indonésie, îles Kei (Key Kecil), 05.2007, GS, 4 ex.

47029420 – Indonésie, Maluku, îles Kei, 09.2011, Kopp D., GS, 1 ex.

47038420/21 – Indonésie, [îles] Kei, TP, 2 ex.

Dysphania subrepleta (Walker, 1854)

Anc. dénom. : *Dysphania s. subrepleta*, *D. s. excubitor*, *D. glaucescens ares*

47029364/68 – Indonésie, W. Sumatra, Harau Valley, 11.2005, GS, 2 ex.

47029365 – Indonésie, W. Irian [=Papua], Nabire, 08.2005, GS, 1 ex. [localité douteuse, vraisemblablement erronée]

47029366/67/70/71 – Malaisie, W. Bornéo, île Karimata, 07/08.1990, GS, 4 ex.

47029369 – Indonésie, Bali, GS, 1 ex. 47029372 – Sans localité, 04.2010, GS, 1 ex.

47029376 – Indonésie, Bali, GS, 1 ex.

47029439/40 – Malaisie, Sabah, Sandu Kau [Sanda Kan], Sapulut River, 22.08.1987, J. Poulard, JP, 2 ex.

47029441 – Malaisie, Sarawak, Niah, 18.08.1977, J. Poulard, JP, 1 ex.

47029442 – Indonésie, W. Sumatra, Lembah Anai, 04.08.1973, J. Poulard, JP, 1 ex.

47038426/27 – Indonésie, E. Java, Mt Kawi, 05.2002, TP, 2 ex.

Dysphania tentans tentans (Walker, 1865)

Anc. dénom. : *Dysphania numana* f. *velitaria*

47029424 – Indonésie, W. Papua, Timika, 06.2002, GS, 1 ex.

47029425 – Indonésie, W. Papua, Weigeo [Waigeo], 09.2003, GS, 1 ex.

47029426 – Indonésie, W. Papua, Sorong, 05.2003, GS, 1 ex.

47029427/31 – Indonésie, W. Papua, Sorong, 02.2005, GS, 2 ex.

47029428 – Indonésie, W. Papua, Timika, 01.2006, GS, 1 ex.

47029429 – Indonésie, îles Kei (Key Kecil), 05.2007, GS, 1 ex.

47029430 – Indonésie, W. Papua, Fak Fak, 01.2005, GS, 1 ex.

47038434 – Indonésie, Papouasie (Irian Jaya), Timika, 05.2002, TP, 1 ex.

47038435 – Indonésie, Papouasie (Irian Jaya), Yahukimo, 01.2014, TP, 1 ex.

Dysphania transducta transducta
(Walker, 1862)

47029389 – Indonésie, Sumatra, Mont Sanggul, 1250 m, 06.2006, GS, 1 ex.

47029390 – Indonésie, [île de] Nias, 06.1995, GS, 1 ex.

47029452 – Malaisie, Cameron Highlands, 700 m, 13.06.1972, EB, 1 ex.

47038432 – Indonésie, O. Sumatra, Harau [Valley], 05.2006, TP, 1 ex.

47038433 – Indonésie, N. Sumatra, Sibuatan (Mt), 05.2009, TP, 1 ex.
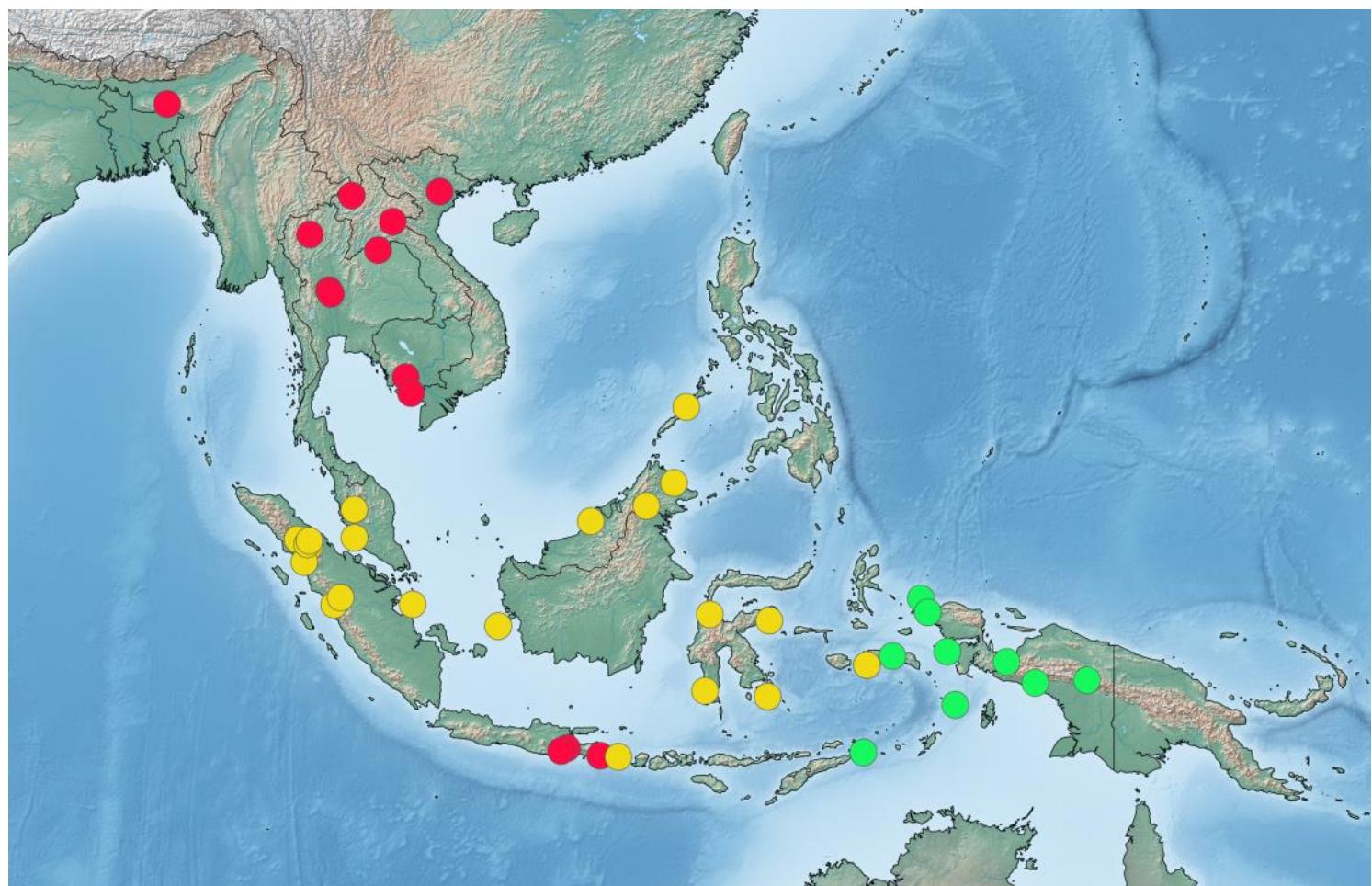
Fig. 3. Distribution des spécimens du musée des Confluences à partir des données géoréférencées. En rouge : les espèces *Dysphania militaris, minervaria* et *sagana* ; en vert : les espèces *D. numana, snelleni, poeyii* et *tentans* ; en jaune, les autres espèces. Carte réalisée avec SimpleMappr (D. Shorthouse).

Conclusion

Le genre *Dysphania* est relativement sous-représenté dans les collections du musée des Confluences. Aucun spécimen n'y était présent dans ses collections historiques (ou bien ils n'ont pas survécus) et seulement deux individus y ont été ajoutés dans les années 1990. La plupart des spécimens ont intégré les collections au début du XXIe siècle, principalement grâce à trois collections : celles de Jean Poulard, de Guy Sircoulomb et de Thierry Porion. Nous avons répertorié 18 espèces de *Dysphania*, provenant de 8 pays d'Asie du Sud-Est et de l'Inde **(Fig. 3)**, pour un total de 114 spécimens.

Remerciements

Nous remercions chaleureusement Guy Sircoulomb qui nous a fourni une importante documentation sur le genre étudié et a relu le manuscrit. Nous sommes également redevable à Kiyoshi Ando pour nous avoir transmis une copie de l'article de K. Yazaki.

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ZOOOLOGIE

Inventory of the Malacological Epistolary of the Correspondents of Marianna Panciatichi Ximenes d'Aragona Paulucci

Inventaire épistolaire malacologique des correspondants de Marianna Panciatichi Ximenes d'Aragona Paulucci

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Summary: The correspondence archive of Marquise Marianna Paulucci Panciatichi Ximenes D'Aragona has been found in the Florence State Archive, consisting of nearly 1400 documents, mostly letters and post-cards, of malacological relevance. Marianna Paulucci, a wealthy Tuscan noblewoman, was a passionate member of the Italian naturalist clubs of the second half of the nineteenth century. In Europe, she was one of the first eminent women recognized for her competence in the field of malacology. Her relations with contemporary malacologists, both Italian and European, were characterized by frequent and lively exchanges of opinions. The archive presented here is the result of these relationships and consists of a vast and varied patrimony of letters and postcards, received and mailed between 1861 and 1896. Most are from scholars but also institutions and sellers (companies, authorities, bookshops, and scientific publishing editors and shell suppliers), closely allied to her scientific activity.

In addition to the letters are invoices for literature and malacological items that she purchased. Also present and considered are lists of shells from the major dealers of natural objects and books in Europe. There are 167 correspondents, mainly Italian, but many other European ones, as well as some American and Australian. There are 1396 documents (letters and post-cards) plus a further 10 letters that could not be attributed to a correspondent, making a total of 1406 documents. In addition to the material found in the Florence State Archive, nine letters, donated in 1898 by Paulucci to the Florence Natural History Museum, together with her malacological library and collections, and two letters acquired successively (Maurizio Sosso donation) were studied. This contribution is intended to outline the entirety of the correspondence retrieved so far, creating a reference basis for future insights into individual correspondents.

KEY-WORDS

Marianna Paulucci Panciatichi Ximenes D'Aragona
epistolary
malacology
history of malacology
correspondence
historical social networks

ZOOOLOGIE

Résumé : La correspondance de la marquise Marianna Paulucci Panciatichi Ximenes D'Aragona a été retrouvée dans les Archives d'État de Florence, avec près de 1400 documents, surtout des lettres et des cartes postales à caractère malacologique. Marianna Paulucci, une riche noble toscane, était un membre passionné des clubs naturalistes italiens de la seconde moitié du XIXe siècle. En Europe, elle fut l'une des premières femmes éminentes pour ses compétences dans le domaine de la malacologie. Ses relations avec les malacologistes contemporains, italiens et européens, ont été caractérisées par des échanges d'opinions fréquents et animés. Le répertoire présenté ici est le résultat de ces relations et représente un patrimoine riche et varié de lettres et de cartes postales, reçues et expédiées entre 1861 et 1896. La plupart émanent de savants mais aussi par d'institutions et de vendeurs (entreprises, autorités, librairies, éditeurs scientifiques et fournisseurs de coquillages), étroitement liés à son activité scientifique.

Outre les lettres, sont incluses les factures d'achat d'ouvrages et d'articles de malacologie qu'elle a achetés, ainsi que les listes de coquillages et d'ouvrages commandés aux principaux marchands d'objets naturels d'Europe et librairies de l'époque. Ce sont 167 correspondants, principalement des Italiens, mais aussi de nombreux Européens, ainsi que quelques Américains et Australiens. Les documents (lettres et cartes postales) sont au nombre de 1396, auxquels il faut ajouter 10 lettres qui n'ont pas pu être attribuée à un correspondant, faisant un total de 1406 lettres. En plus du matériel trouvé dans les Archives d'État de Florence, neuf lettres, données en 1898 par Paulucci au Musée d'histoire naturelle de Florence, avec sa bibliothèque et ses collections malacologiques, et deux lettres acquises successivement (donation Maurizio Sosso) ont été prises en compte. Cette contribution vise à mettre en évidence la cohérence de la correspondance retrouvée jusqu'à présent, fournissant une base de référence pour les futures recherches sur les correspondants individuels.

MOTS-CLÉS

Marianna Paulucci Panciatichi Ximenes D'Aragona
épistolaire
malacologie
histoire de la malacologie
correspondance
réseaux sociaux historiques

Introduction

In the collection of the Panciatichi family, preserved in the Florence State Archive, a rich correspondence of letters and documents related to malacology belonging to the Marquise Marianna Panciatichi Ximenes d'Aragona Paulucci (Florence, 3 February 1835 – Reggello, 7 December 1919) has been studied (**Fig. 1**). The letters were sent to the Marquise Paulucci from the major malacological scholars of the second half of the nineteenth century, while the other documents, sent by institutions and sellers (companies, libraries, scientific publishing editors and shell suppliers) were mostly related to the purchase of books and shells.

In this first contribution, we wish to outline the structure of this rich and varied correspondence which is composed of 1385 letters and postcards, to which must be added 10 letters that could not be attributed to a correspondent, and the correspondence (11 letters) preserved in the Museum of Natural History of Florence (Sistema Museale d'Ateneo, S.M.A.) of the Florence University, making a total of 1406 letters (**Tab. 1**). The study of the correspondence will improve the knowledge on Marianna Paulucci, now recognized among the most enlightened feminine scholars in natural sciences of the late nineteenth century (Manganelli *et al.* 2002; Manganelli & Cianfanelli 2002; Cianfanelli & Manganelli, 2002; Manganelli *et al.*, 2009; Barbagli, 2019; Cianfanelli *et al.*, 2021; Barbagli & Santacroce, 2022; Cianfanelli *et al.*, 2023).

Regarding Italy, the second half of the nineteenth century can be considered as the most fruitful period, not only for malacology, but also for the natural sciences.

The unification of Italy created a new national culture, seeking to conform with the economic

and cultural sectors of othern major European countries. In the field of natural sciences, several malacological societies were formed, to which Paulucci had been affiliated since their foundation, (Manganelli *et al.*, 2002, 2009) In particular the Italian Malacological Society was created in 1874 in Pisa (Manganelli *et al.*, 2017). The *Italian Malacological Bulletin* (1868–1875) first and then the *Bulletin of the Italian Malacological Society* (1875–1899) witnessed the transition from a purely collecting approach of the first half of the nineteenth century, to a more scientifically specialised focus. Marianna Paulucci was the first woman to subscribe to the Italian Geological and Palaeontological Society in 1882 (Mazzini *et al.*, 2022; Talenti *et al.*, 2024). Paulucci herself began to collect, buy and exchange fossil and recent marine and continental shells with the sole purpose of forming a rich collection (Thielens, 1876). After 1876, following the widespread nationalistic turmoil, she dedicated herself to producing an Italian faunal list on terrestrial and freshwater molluscs, which would have allowed Italy to place itself at the same level of other European countries (Paulucci, 1878; Manganelli *et al.*, 2002). For this purpose, she created a first collection of 534 Italian species in 5346 boxes and presented it at the *Exposition Universelle* in Paris, publishing the first catalogue of Italian species (Paulucci, 1878). For this project, she established a network of relationships with the most important malacologists; even more extensive than the one she had already partly built to form her collection of marine and terrestrial fossil and exotic shells.

Fig. 1. Portrait of Marianna Panciatichi Ximenes d'Aragona Paulucci (1861), preserved in FB.

Materials and methods

The documents mainly concern those of the Panciatichi collection, 1367 letters; 28 postcards (filed in two folders: box 239 (**Fig. 2**) and 51) are preserved in the Florence State Archive. The documents were all photographed in order to study their contents. To these letters, a small batch of 11 letters preserved in the historical archive of the Natural History Museum of Florence (S.M.A.) was added. In addition to the correspondents' letters, we also examined the payment receipts of the bookstores where Paulucci bought the malacological books and the correspondence of the societies with which she came into contact for reasons related to malacology. The sale catalogues of molluscs sent by the major dealers of the time, present in "box 51", were excluded. The correspondents are listed in alphabetical order, followed by their concise data, following the criteria already adopted in Manganelli *et al.* (2017), postponing the in-depth analysis to future works on individual scholars. In some cases, the data for each correspondent were reported in a non-uniform and incomplete way, due to lack of information. The following data are given: given name and surname, date of birth and death, country of origin, portrait - when available. For the correspondents, we followed the criteria of Coan *et al.* (2021). The author is considered the one who has published at least one essay on molluscs; collector, who has collected or owned a collection of molluscs, indicating the specialization: fossil, recent, continental molluscs, marine molluscs. Also recorded are the main activity of the correspondent (military, university professor, publisher, etc.) and any other interests in

Fig. 2. Box 239 in the Panciatichi Fund at the Florence State Archive.

natural sciences. Other specific data of the correspondence are: the number of letters and postcards present, their location in the individual boxes at the Florence State Archive or at the Natural History Museum of Florence University, the language/s in which the letters were written, the year or the time span in which the letters were written, the places from which the letters were written, and any other relevant information.

When present, references are given to wide-ranging papers in which the individual correspondents have been previously treated, in particular, in Manganelli *et al.* (2017), Breure & Audibert (2017), Coan & Kabat (2021), supplemented by other bibliographic sources when necessary. For the Societies, Libraries and Publishing Houses, brief historical notes of their activity are also reported.

Abbreviations:

APXA: Panciatichi Ximenes d'Aragona fund

ASFI: Archivio di Stato di Firenze

FB: Fausto Barbagli archive

IA: Internet Archive

MZUF: Museum of Natural History "La Specola" (S.M.A.) of the University of Florence

PH: Phaidra (Permanent Hosting, Archiving and Indexing of Digital Resources and Assets), Padova University

RP: Roberto Poggi archive

SMA: Sistema Museale di Ateneo Università di Firenze

SNM: Senckenberg Natural History Museum

WP: Wikipedia (public domain or CC BY-SA 4.0)

Discussion

The archive highlights how Marianna Paulucci an international character and reveals unpublished news and backgrounds, which characterized the history of malacological studies of a prosperous historical period, between the end of the Napoleonic wars and the First World War, which Dance (1966; 1986) defined "the golden age of malacology" for the European continent.

Paulucci's international outlook is evident from the many journeys she undertook during 1862 and 1882, both in Europe (Paris, London, Russia, France, Germany, Switzerland, Austria and Spain) and in various Italian regions. During these travels, she had the opportunity to meet many of the most important malacology scholars of the time, such as Tommaso Allery Di Maria, Marquis of Monterosato, Nicola Tiberi, Cesare Maria Tapparone Canefri, Antonio Villa, Wilhem Kobelt, Hippolyte Crosse, Paul Henri Fischer, Stefan Clessin, Jean-Baptiste Gassies, George Brettingham Sowerby III, and Gwyn Jeffreys (**Fig. 3A-B**).

The letters in this archive show the existing network of relationships with the major scientists and collectors who dealt with continental molluscs in Italy and Europe. In the first letters, she asked for confirmation on the diagnoses of the species she considered new (see the case of Crosse *in* Cianfanelli *et al.*, 2024), then for an opinion on the diagnoses that she herself began to draw up, and in some letters, there are also drawings of shells. Subsequently with greater experience, her publications produced debates and criticisms, which in some cases were published (Pini, 1879; Paulucci, 1880).

The fame of her collection was so widespread throughout Europe that many people visited her, such as Tommaso Allery Di Maria Marquis of Monterosato, Wilhem Kobelt, Gwyn Jeffreys, Hippolyte Crosse and many others. A particular case was that of Armand Thielens, a Belgian naturalist who, on his participation in the "Congresso internazionale di Botanica e dell'Esposizione internazionale di Orticoltura", was hosted by the Marquise Paulucci who showed him her collection. Thielens remained so impressed by her collection that he published a work describing it (Thielens, 1874). Tapparone Canefri published some of his works based on the "Museum Pauluccianum" as it appears in the titles of his papers (Tapparone Canefri, 1879, 1882). The collection, which had so fascinated Thielens in 1874, grew in the following years, by specializing in Palearctic terrestrial and freshwater malacofaunas. It was even more appreciated when Paulucci decided to present it in two international events: that of the *Exposition Universelle* in Paris (1878) and the *Internationale Fischerei-Ausstellung* in Berlin (1880), which were the subject of two of her publications (Paulucci, 1878, 1880).

It is interesting to note how the temporal progression of the letters with their correspondents reflects the path of the Marquise's interests. In the list of her correspondents, we first find the palaeontologists, then the specialists of Mediterranean and exotic marine molluscs and from a certain point onwards only scholars who dealt with the fauna of the continental European molluscs, such as Oskar Boettger, Stephan Clessin, Henri Droüet,
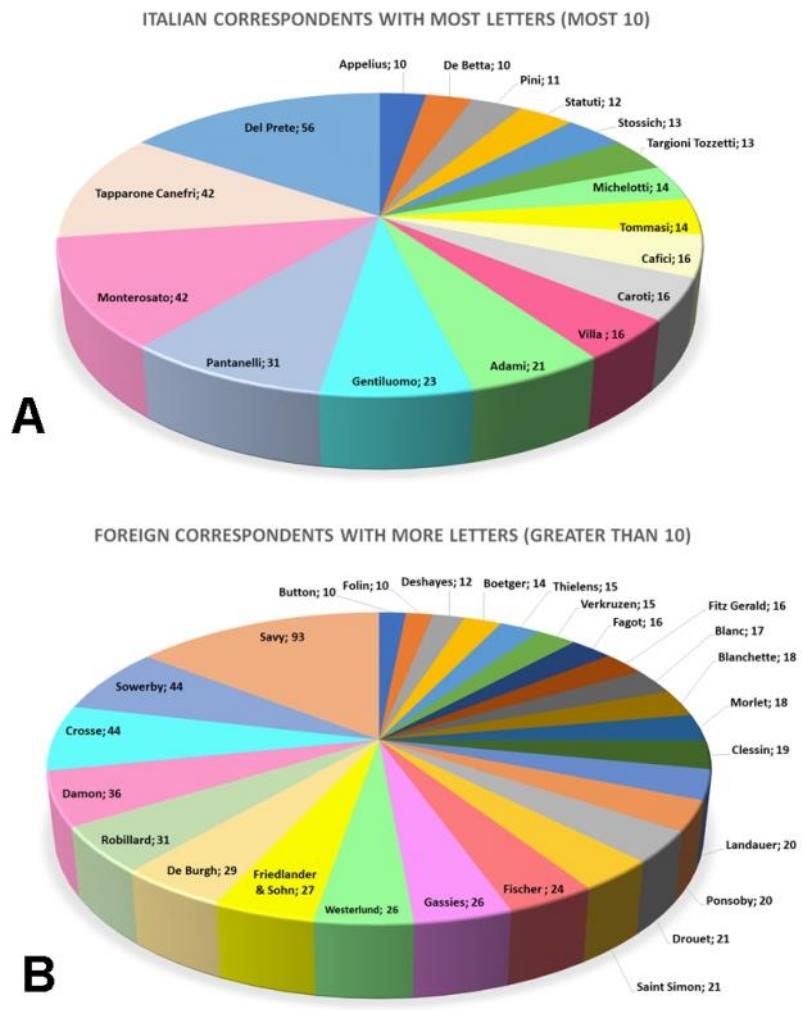
Fig. 3. Correspondents table.
A. Italians with more than 10 letters;
B. Foreign correspondents with more than 10 letters.
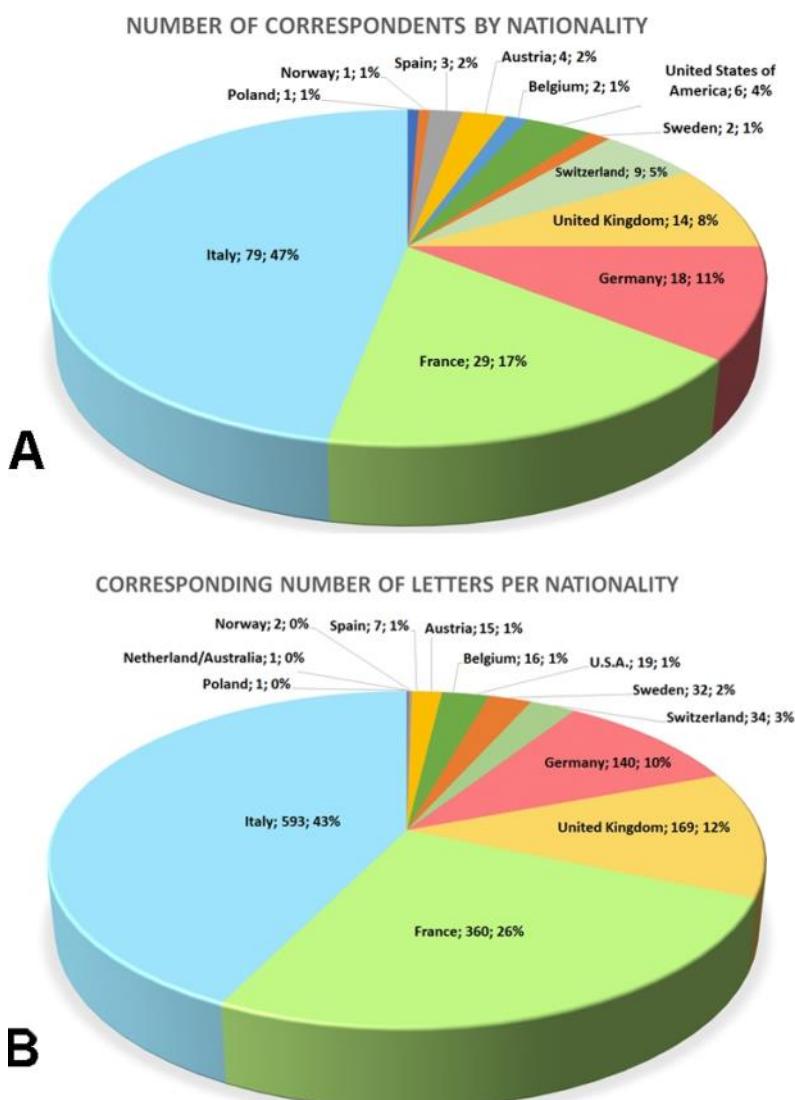
Fig. 4. Correspondents.
A. Corresponding by nationality.
B. Number of letters by nationality.

Fig. 5. Correspondence time trend diagram.

Wilhem Kobelt, Guillaume Camille Alfred De Candie Saint Simon, Carl Agardh Westerlund. There are 167 correspondents and 47% are Italian authors (79), however the number of correspondents from other countries is also high: France 17% (29), Germany 18% (11), United Kingdom 14% (8), and Switzerland 5% (9). There are also numerous correspondents from other continents such as North Americans and Australians (**Tab. 1**; **Fig. 4A**). The documents (letters and post-cards) are 1406, taking into account the sellers of shells and bookshops, publishing houses, printing presses and companies. The predominance is that of the Italian correspondents with about 43% of the documents (593) followed by that of the French ones 26% (360), the British ones 12% (169) and the German ones 10% (140) (**Tab. 1**; **Fig. 4B**). The documents were written between 1861 to 1896, the peak numbers between 1873 and 1883 (**Tab. 1**; **Fig. 5**). This period coincided with the highest production of scientific papers by Paulucci, on the Italian continental malacofauna (Manganelli *et al.*, 2002). From 1884 to 1896 the number of letters in the archive is much lower (5 letters).

This could depend on two kinds of reasons, the first being that the letters of that period could have been lost or not yet identified in the vast Panciatichi archive. The other, the most plausible, is that for family reasons Paulucci had to decrease her commitment towards her malacological studies. In fact, with the death of her husband Alessandro Anafesto Paulucci in 1887, and the simultaneous illness of her father, Marquis Ferdinando Panciatichi, who died in 1897, the Marquise had to take the reins of her conspicuous patrimony, a burdensome commitment that distanced her from the malacological passion. The paleontological collections were donated to the Museum in Florence in 1869 (this fact deduced by a letter from Igino Cocchi) and 1898 (Cioppi & Dominici, 2010). Again, in 1898, the year after her father's death, she donated her malacological collections to the Florentine Scientific Institutions (Barbagli & Borri, 2002).

The letters preserved in the MZUF (11) were probably donated together with other documents to the Florentine Royal Museum of Physics and Natural History together with her collection and her personal library in 1898.

The Italian correspondent with the highest number of letters sent is Raimondo Del Prete (54), followed among Hippolyte Crosse (44),

with whom she had a very intense correspondance since 1862 (Cianfanelli *et al.*, in press), Monterosato (42) and Tapparone Canefri (42) (**Fig. 4**). François Paul Savy is excluded because his correspondence is mostly related to the purchase of books (93). Among the correspondents there are also 5 women, with 29 letters: Julia Fitz-Gerald, Adele Verdey, Zoe Vimont, Julie Vieusseux, Marianne De Burgh, to the latter the Marquise dedicated a species, *Clausilia (Papillifera) deburghiae* Paulucci, 1878 (**Fig. 3A-B**).

If we exclude 3 letters dealing with ornithology, another naturalistic interest of Paulucci's, in the correspondence all the documents, letters, receipts, price lists have malacology as their sole object.

Research in the Archive is still ongoing and other letters of malacological content may be discovered. In particular, the letter received by Paulucci from Bourguignat mentioned in one of her papers has not yet been found (Paulucci, 1880, pagg. 170-171): "*... mi decisi a scrivere direttamente al sig. Bourguignat a Saint-Germain presso Parigi e per esser sicura che egli avrebbe ricevuta la mia lettera, la spedii raccomandata ... Mi rispose una lettera che serbo come campione di un genere di gentilezza di cui per mia buona ventura è il primo ed unico esemplare che abbia mai ricevuto*" ["... I decided to directly write to Mr. Bourguignat to Saint-Germain near Paris and to be sure that he would receive my letter, I sent it by registered mail ... I was answered by a letter which I keep as a sample of a kind of kindness of which by my good fortune is the first and only copy I have never received"]. The letters of the correspondents present in the Florence State Archive and at the Museum of Natural History of the University of Florence confirm, with unpublished information, the importance of the role that Marianna Paulucci played in Europe in the second half of the nineteenth century for the evolution and the knowledge of the Italian, but also European, malacological fauna.

The correspondents

Adami, Giovanni Battista (1838-1887; Italy), (Pl. 1, Fig. A). Military, author, collector specialised of the Italian non-marine molluscs. 20 letters, in box 239 in ASFI-APXA, 1 letter in MZUF, 1876-83, in Italian. Edolo, Desenzano, Chiari, Clusone, Bari, Verona. Manganelli *et al.* (2017), Coan & Kabat (2021).

Allery Monterosato Tommaso di Maria (1841-1927; Italy), (Pl. 1, Fig. B). Nobleman, author, specialised in Mediterranean marine molluscs. 42 letters, box 239 in ASFI-APXA, 1870-83, in Italian. Palermo, Paris, Rome, Leghorn. Manganelli *et al.* (2017), Breure & Audibert (2017), Coan & Kabat (2021).

Alt & Neumann (Germany), (Fig. 6). Publishing bookshop founded in 1868 by Johannes Alt and Justus Neumann at 18 Hirschgraben, in Frankfurt, active at least until 1903 in the field of publications initially in theology, then also in zoology, geology, and musicology (Lübbecke, 1948). 7 letters, box 51 in ASFI-APXA, 1877-81, in German and Italian. Frankfurt. The letters are sometimes signed by Alt, others by Neumann.

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Mark | Pfennig

Fig. 6. Alt & Neumann receipt, preserved in ASFI-APXA.

Andreae, Achilles (1859-1905; Germany), (Pl. 1, Fig. C). University lecturer (in geology), author, collector, specialized in fossil shells. 1 letter, box 239 in ASFI-APXA, 1873, in French. Frankfurt. Coan & Kabat (2021).

Appelius, Federigo [Luigi] (1838-1876; Italy), (Pl. 1, Fig. D). Engineer, author, collector of Mediterranean and tropical shells and continental molluscs. 9 letters and 1 post-card, box 239 in ASFI-APXA, 1866-78, in Italian. Leghorn. Manganelli *et al.* (2017), Coan & Kabat (2021).

Aradas, Andrea (1810-1882; Italy), (Pl. 1, Fig. E). University lecturer (in geology), author, collector of recent and fossil marine molluscs. 3 letters, box 239 in ASFI-APXA, 1877-80, in Italian. Catania. Coan & Kabat (2021).

Baudon, Auguste Adolphe (1821-1905; France), (Pl. 1, Fig. F). Physician, author, collector specialised in non-marine molluscs of French. 5 letters, box 239 in ASFI-APXA, 1880-81, in French. Mouny. Breure & Audibert (2017), Breure & Moolenbeeck (2017), Coan & Kabat (2021).

Benoit, Luigi (1804-1890; Italy), (Pl. 1, Fig. G). Customs clerk, politician, author, and collector of fossil and recent of continental and marine molluscs, ornithologist and entomologist. 6 letters, box 239 in ASFI-APXA, 1876-1878, in Italian. Messina. Manganelli *et al.* (2017), Breure & Audibert (2017), Coan & Kabat (2021).

Blanc, Hippolyte (?-1896?; Italy). State property officer, author with Westerlund (1879), collector of recent continental molluscs, botanist. 17 letters, box 239 in ASFI-APXA, 1877 -83, in Italian. Portici (Naples).

Blanchet, Jaques Samuel (1807-1875; Switzerland/Brazil), (Pl. 1, Fig. H). Merchant, mostly botanist, collector of recent continental molluscs. 17 letters, in box 239 and 1 letter, in box 51 in ASFI-APXA, 1864-1867, in French. Genève, Naples, Rome, Lausanne. Breure & Tardy 2016, Coan & Kabat (2021).

Bocca Fratelli (Italy), (Fig. 7). The historical Bocca bookshop was opened in Turin in 1775 by the brothers Giovanni Antonio Sebastiano and Secondo Bocca, from Asti. The bookshop had five locations in the past: Paris, Florence, Rome, Turin and Milan. In Florence, its headquarters were in via Cerretani 8. 2 letters, box 51 in ASFI-APXA, 1875-82, in Italian. Florence.

Boccaccini, Corrado (1845-1902; Italy), (Pl. 1, Fig. I). Teacher at the "Liceo di Scienze Naturali di Cuneo", botanist. 1 letter, box 239 in ASFI-APXA, 1879, in Italian. Cuneo. Manganelli *et al.* (2017).

Bock, Carl (1849-1932; Norwegian/United Kingdom), (Pl. 2, Fig. A). Government official, author collector, and dealer of tropical marine shells. 2 letters, box 239 in ASFI-APXA, 1877, in English. London. Coan & Kabat (2021).

ROMA, Via del Corso, 216-17.

TORINO
Via Carlo Alberto, 3.

FIRENZE
Via Cerretani, 8.

N°

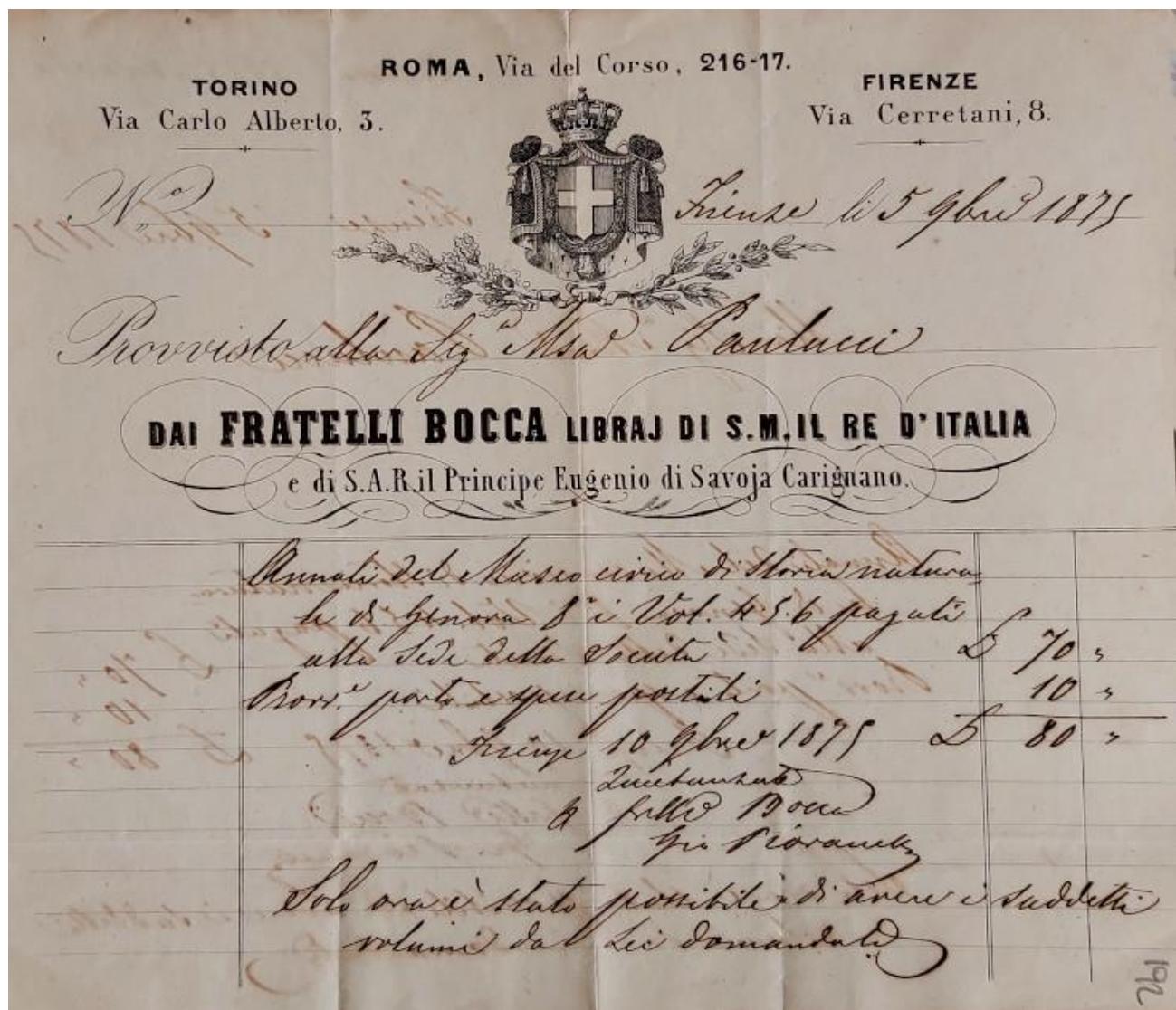
Firenze li 5 9bre 1875

Provvisto alla Sig.a M.sa Paulucci

DAI FRATELLI BOCCA LIBRAJ DI S.M. IL RE D'ITALIA
e di S.A.R. il Principe Eugenio di Savoja Carignano.

Annali del Museo civico di Storia naturale di Genova 1° i Vol. 4.5.6 pagati alla Sede della Società £ 70 ;
Porto e spese postali 10 ;
Firenze 10 9bre 1875 £ 80 ;
Quietanzato
p. Fratelli Bocca

Solo ora è stato possibile di avere i suddetti volumi da Lei domandati

Fig. 7. Fratelli Bocca receipt, preserved in ASFI-APXA.

Boettger, Oskar (1844-1910; Germany), (Fig. 8; Pl. 2, Fig. B). Museum curator, herpetologist, author, specialised in recent continental molluscs. 14 letters, box 239 in ASFI-APXA, 1877-81, in French. Frankfurt. Breure & Audibert (2017), Coan & Kabat (2021).

Costata et scala-
roide
oscitans subsp. scalaris V.
encore.
Voilà une figure de la scalaris
= fr. 50.— et qui semble être
Les no. 10 et 11 sont la
scalaris P.

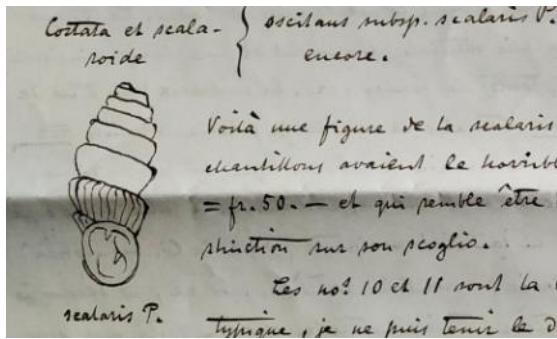



Fig. 8. Drawing by O. Boettger inserted in a letter dated 16 May 1879 sent to M. Paulucci, preserved in ASFI-APXA.

Bolgiano, Karl (1816-1897; Germany), (Figs. 9 -10). University lecturer (in law), collector of tropical marine shells. 4 letters, box 239 in ASFI-APXA, 1875, in French. Frankfurt. Notes: The letters contain two shell drawings. Zilch (1967), Coan & Kabat (2021).

(Grandeur naturelle
3/4 de la superficie est
brillant, la partie inférieure
est plus faible)

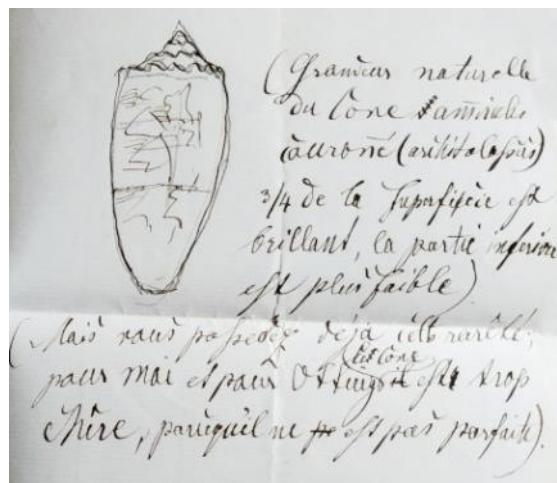



Fig. 9. Drawing by K. Bolgiano inserted in a letter dated 7 August 1875 sent to M. Paulucci, preserved in ASFI-APXA.

Fig. 10. Drawing by K. Bolgiano inserted in a letter dated 1 August 1875 sent to M. Paulucci, preserved in ASFI-APXA.

Bouè, Ami (1794-1881; Austria), (Pl. 2, Fig. C). Physician, geologist, author, collector of fossil marine molluscs. 1 letter, box 239 in ASFI-APXA, 1879, in French. Wöslau. Coan & Kabat (2021).

Briendel, Alfonso (?-? ; Italy). 1 letter, box 239 in ASFI-APXA, 1879, in Italian. Nabresina.

Brogi, Sigismondo (1850-1899; Italy), (Pl. 2, Fig. D). Ornithologist, he opened a famous Taxidermic Cabinet in Siena. 2 letters, box 239 in ASFI-APXA, 1881-1882, in Italian. Siena. Barbagli & Violani (2012).

Brot, Auguste Louis (1821-1896; Switzerland), (Pl. 2, Fig. E). Physician, author, collector of recent continental molluscs. 2 letters, box 239 in ASFI-APXA, 1877-1888, in French. Geneve. Breure & Tardy (2016), Coan & Kabat (2021).

Brugnone, Giuseppe [Antonio] (1814-1884; Italy), (Pl. 2, Fig. F). Jesuit abbot, author, collector of fossil and recent marine and continental molluscs, botanist, entomologist and mineralogist. 2 letters, box 239 in ASFI-APXA, 1876, in Italian. Palermo. Manganelli *et al.* (2017), Breure & Audibert (2017), Coan & Kabat (2021).

Bryce, McMurdo Wright Jr. (1850-1885; United Kingdom), (Pl. 2, Fig. G). Bryce McMurdo Wright Sr. (1814-1875) and Jr. (1850-1885) were among the best-known 19th-century minerals, fossils, shells, rocks, gems, corals, dealers in England. 1 letter, box 239 in ASFI-APXA, 1878, in French. London. Note: the letter dated 1878 was surely written by Wright Jr.

Button, Fred (1856-1927; United States of America), (Pl. 2, Fig. H). Lawyer, politician, collector of recent marine and continental molluscs. 10 letters, box 239 in ASFI-APXA, 1876-1882, in French. Berkeley, Lake Port, Oakland. Breure & Audibert (2017), Coan & Kabat (2021).

Cafici, Corrado (1856-1954; Italy), (Pl. 2, Fig. I). Nobleman, non-academic, archaeologist and malacologist, mayor of Vizzini (Catania), author, collector of recent continental molluscs. 16 letters, box 239, in ASFI-APXA, 1879-1882, in Italian. Vizzini. Manganelli *et al.* (2017), Coan & Kabat (2021) erroneously mentioned him as Carlo, not Corrado.

Caifassi, Bartolomeo (1828-1906; Italy). State administration employee, cashier of the Italian Malacological Society. 5 letters, box 239 in ASFI -APXA, 1877-1882, in Italian. Pisa. Manganelli *et al.* (2017), Coan & Kabat (2021).

Caroti, Cesare (?-?; Italy). Secretary of Paulucci, he was sent to explore Calabria, Pollino, Sardinia and other Italian regions, author, collector of recent continental molluscs. 16 letters, box 239 in ASFI-APXA, 1878-1880, in Italian. Paris, Belleville, Cagliari, Rionero, Laconi, Potenza, Naples, Novoli. Manganelli *et al.* (2017). Coan e Kabat (2021) erroneously considered him French.

Carruccio, Antonio (1839-1923; Italy), (Pl. 3, Fig. A). Graduated in medicine, university lecturer (in Zoology), assigned to Cagliari, Florence and finally Rome, where he founded the “Museo di Zoologia”. 1 letter, box 239 in ASFI-APXA, 1882, in Italian. Modena. Manganelli *et al.* (2017), Breure & Audibert (2017), Coan & Kabat (2021).

Castelli, Federigo (1824 -1897; Italy). Graduated in natural sciences, founder and vice-president of the Tuscan Society of Natural Sciences, politician, collector of recent and fossils marine and continental molluscs, and other naturalistic specimens. 1 letter, box 239 in ASFI-APXA, 1867, in Italian. Leghorn. Gremigni (2004), Manganelli *et al.* (2017), Coan & Kabat (2021).

Cavanna, Guelfo (1850-1920; Italy), (Pl. 3, Fig. B). Entomologist, teacher (in natural sciences) and Associate Professor in Florence, collector of recent continental molluscs. 2 letters, box 239 in ASFI-APXA, 1 letter, in MZUF, 1877-1881, in Italian. Florence. Manganelli *et al.* (2017).

Cerio, Ignazio (1841-1921; Italy), (Pl. 3, Fig. C). Physician, collector recent marine and continental molluscs, botanist, archaeologist and palaeontologist. 5 letters, box 239 in ASFI-APXA, 1877-1878, in Italian. Capri. Cerio (1921), Coan & Kabat (2021).

Chevalisy ..? (?-?; Belgium). 1 letter, box 239 in ASFI-APXA, 1868, in French. Tirlemont. Notes: Chevalisy wrote the letter on letterhead of a friend of Thielens, and in the name of the latter, who was ill and unable to do so.

Clessin, Stephan (1833-1911; Germany), (Fig. 11; Pl. 3, Fig. D). Initially military officer, he later worked for the Bavarian state railway, author, and collector of fossil and recent continental and marine molluscs. 19 letters, box 239 in ASFI-APXA, 1878-1882, in French. Ochsenfurt. Breure & Audibert (2017), Coan & Kabat (2021).

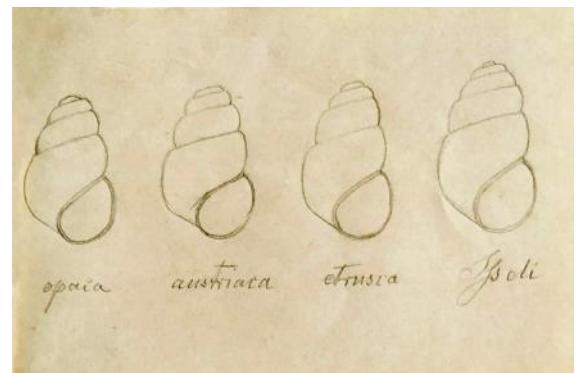



Fig. 11. Drawing by S. Clessin inserted in a letter dated 17 June 1879 sent to M. Paulucci, preserved in ASFI-APXA.

Cleve, Per Theodor (1840-1905; Sweden), (Pl. 3, Fig. E). University teacher (in chemistry), oceanographer and palaeontologist, collector of fossil and recent continental and marine molluscs. 6 letters, box 239 in ASFI-APXA, 1878-1882, in French. Uppsala, Paris. Coan & Kabat (2021).

Club Alpino Italiano, Lucca (Italy). 2 letters, box 239 in ASFI-APXA, 1881, in Italian. Lucca. Notes: The request for some species of molluscs from the Apuan Alps, to be presented at the Milan exhibition of 1881, was made to Paulucci by Andrea Giorgio Juon, one of the founders of the Lucca section of the Alpine Club. The rich material made it possible to open in Lucca, in 1880, an exhibition of minerals, metals, and other issues, from the Lucca province. These specimens allowed the Marquise Paulucci to compete, in 1881, in the national exhibition of Milan and to be rewarded.

Cocchi, Igino (1827-1913; Italy), (Pl. 3, Fig. F). University teacher (in geology), geologist and palaeontologist, president in 1887 and in 1895 of the Italian Geology Association, collector of fossil molluscs. 6 letters, box 239 in ASFI-APXA, 1863-1869, in Italian. Florence. Coan & Kabat (2021).

Collier, Edward (1846-1920; United Kingdom). Author, collector of recent continental molluscs. 1 letter, box 239 in ASFI-APXA, 1881, in English. Manchester. Coan & Kabat (2021).

Coppi, Francesco (1843-1927; Italy), (Pl. 3, Fig. G). Graduated in natural sciences, palaeontologist, founding partner of the “Società dei naturalisti” in Modena, author, collector of fossil molluscs. 1 letter, box 239 in ASFI-APXA, 1883, in Italian. Modena. Manganelli *et al.* (2017), Coan & Kabat (2021).

Costa, Achille (1823-1898; Italy), (Pl. 3, Fig. H). University lecturer (in zoology) and director of the zoological museum of Naples, author, collector of recent continental and marine molluscs. 4 letters, box 239 in ASFI-APXA, 1881-1882, in Italian. Florence, Naples. Manganelli *et al.* (2017), Coan & Kabat (2021).

Crosse, Hippolyte (1826-1898; France), (Pl. 3, Fig. I). Lawyer, director of the Journal of Conchology from 1861 until his death in 1898, author, collector of recent continental and marine molluscs. 40 letters, box 239 and 2 letters, box 51 in ASFI-APXA, 1862-1880, in French. Paris, Vernou. Breure & Audibert (2017), Breure & Fontaine (2019), Coan & Kabat (2021).

Damon, Robert (1814-1889; United Kingdom). Damon was initially an industrial manufacturer of gloves and shoes. Subsequently with his son, Robert Ferris Damon (1845-1929), established a dealership of natural history specimens in Weymouth, also a geologist, author, collector of fossil and recent marine and continental molluscs. 36 letters, box 51 in ASFI-APXA, 1865-73, in English. Weymouth. Dance (2006), Breure & Audibert (2017), Coan & Kabat (2021).

D'Ancona, Cesare (1832-1908; Italy), (Pl. 4, Fig. A). University lecturer (in geology), author, collector of fossil marine molluscs. 9 letters, box 239 in ASFI-APXA, 1864-1881, in Italian. Florence. Manganelli *et al.* (2017), Coan & Kabat (2021).

De Betta, Francesco Edoardo (1822-1896; Italy), (Pl. 4, Fig. B). Lawyer, landowner, politician, author, collector of recent continental molluscs, herpetologist. 10 letters, box 239 in ASFI-APXA, 1878-1882, in Italian. Verona, Marcellise. Manganelli *et al.* (2017), Coan & Kabat (2021).

De Burgh, Marianne [Tollemache] (1809-1880; United Kingdom). Daughter of the Admiral John Richard Delap Tollemache, non-academic collector of exotic marine molluscs. 29 letters, box 239 in ASFI-APXA, 1861-1876, in French and English. Florence, Ecclestone, Homburg, Biarritz, Gironde, Couholt Park (Andover), Peckforton Castle Cheshire. (Wilkins, 2019).

Degréaux (o de Gréaux) Laurent (1822- ?; France). He was known as a "naturalist" (a naturalist-merchant) based to different cities: Marseille, Nice and Toulon. 3 letters box 51 in ASFI-APXA, in French, 1876. Marseille.

Desor, Pierre Jean Édouard (1811-1882; Switzerland), (Pl. 4, Fig. C). University lecturer (in geology) at Neuchâtel, author. 3 letters box 239 in ASFI-APXA, in French, 1864-1875. Neuchâtel, Paris. Coan & Kabat (2021).

De Stefani, Carlo (1851-1924; Italy), (Pl. 4, Fig. D). Lawyer, university lecturer (in geology), politician. 1 letter and 1 post-card, box 239 in ASFI-APXA, 1869-1882, in Italian. Florence. Manganelli *et al.* (2017), Coan & Kabat (2021).

De Stefanis, Nicola (1799-1893; Italy). Military, collector specialised in recent Mediterranean marine molluscs. 9 letters, box 239 in ASFI-APXA, 1868-1869, in Italian. Naples.

Del Prete, Raimondo (1850-1937; Italy), (Fig. 12, Pl. 4, Fig. E). Physician, author, collector of recent continental and marine molluscs. 49 letters and 5 post-cards, box 239 in ASFI-APXA, 2 letters in MZUF, 1876-1882, in Italian. Viareggio. Manganelli *et al.* (2017), Coan & Kabat (2021).

Fig. 12. Drawing by R. Del Prete inserted in a letter dated 27 April 1879 sent to M. Paulucci, preserved in ASFI-APXA.

Deschamps, Emile (1857-1938; France). Traveller, collector of recent continental molluscs. 3 letters, box 239 in ASFI-APXA, 1883, in French. Marseille. Breure & Audibert (2017).

Deshayes, Gerard Paul (1796-1875; France), (Pl. 4, Fig. F). University lecturer (in natural history) geologist, author, collector of fossil and recent continental and marine molluscs. 11 letters, box 239 and 1 letter, box 51 in ASFI-APXA, 1865-1871, in French. Paris. Breure & Audibert (2017), Coan & Kabat (2021).

Doderlein, Pietro (1810-1895; Italy), (Pl. 4, Fig. H). University lecturer (in geology), author, collector of fossil and recent marine molluscs. 1 letter, box 239 in ASFI-APXA, 1869, in Italian. Palermo. Manganelli *et al.* (2017), Massa *et al.* (2018), Coan & Kabat (2021).

Dohrn, Wolfgang Ludwig Heinrich (1838-1913; Poland), (Pl. 4, Fig. G). Author, collector of recent continental and marine molluscs.

Paulucci dedicated him two Sardinian species Azeca dohrni and Helix dohrni. 1 letter, box 239 in ASFI-APXA, 1881, in French. Szczecin. Breure & Audibert (2017).

Drouët, Henri (1829-1900; France). State administration employee, author, collector of recent continental and marine molluscs, also botanist. 19 letters, box 239 in ASFI-APXA, 2 letters in MZUF, 1879-1883, in French. Dijon. Breure & Audibert (2017), Breure & Audibert (2019), Coan & Kabat (2021).

Dupuy, Dominique (1828-1885; France), (Pl. 4, Fig. I). Abbot, professor of natural history in Auch, author, collector of fossil and recent continental molluscs, botanist. 4 letters, box 239 in ASFI-APXA, 1879-1880, in French. Auch (Gers). Breure & Audibert (2017), Coan & Kabat (2021).

Étienne, Jean Auguste Celestin [Frère Ogérien] (1825-1869; France), (Pl. 5, Fig. A). Friar, naturalist and geologist. 1 letter, box 239 in ASFI-APXA, 1867, in French. Lons-le-Saunier. Coan & Kabat (2021).

Fagot, Paul (1842-1908; France), (Pl. 5, Fig. B). Lawyer, journalist, author, collector of recent continental molluscs. 16 letters, box 239 in ASFI-APXA, 1878-1882, in French. Villefranche. Breure & Audibert (2017), Coan & Kabat (2021).

Féret & Fils (France). Jean-Baptiste Féret founded the publishing house La Librairie Féret in Bordeaux in 1812, which became Féret et fils in 1841. 1 letter, box 51 in ASFI-APXA, 1882, in French. Bordeaux.

Fischer, Paul Henri (1835-1893; France), (Figs. 13-14, Pl. 5, Fig. C). Physician, palaeontologist, author, collector of fossil and recent continental and marine molluscs. 23 letters, box 239 in ASFI-APXA, 1 letter in MZUF, 1866-1882, in French. Paris, Cauterets (Hautes-Pyrénées). Breure & Audibert (2017), Coan & Kabat (2021).

Fitz-Gerald, Julia [Mrs.] (1830-1906; United Kingdom), (Pl. 5, Fig. D). Juliana M.M. Hele married Charles E. Fitz-Gerald, author, collector of recent continental molluscs. 16 letters, box 239 in ASFI-APXA, 1878-1882, in English and French. Folkestone. Coan & Kabat (2021 [not Fitzgerald]).

Folin, Alexandre Guillaume Léopold de (1817-1896; France), (Pl. 5, Fig. E). Naval officer, author, collector of recent marine

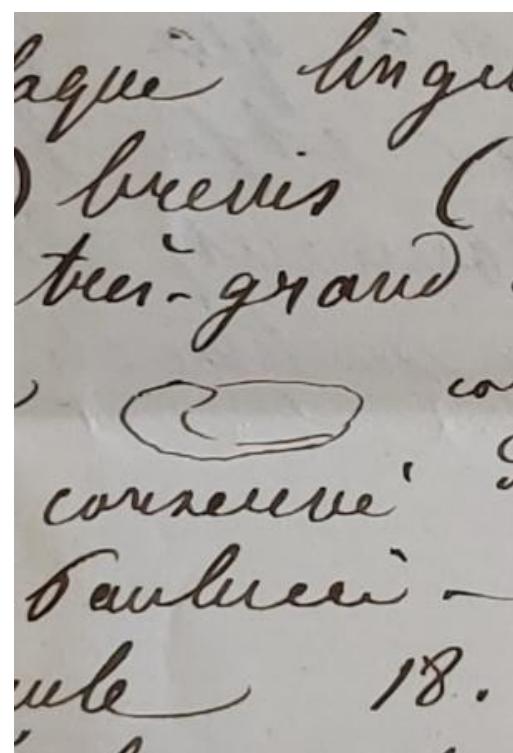



Fig. 13. Drawing by P. H. Fischer inserted in a letter dated 29 December 1877 sent to M. Paulucci, preserved in ASFI-APXA.

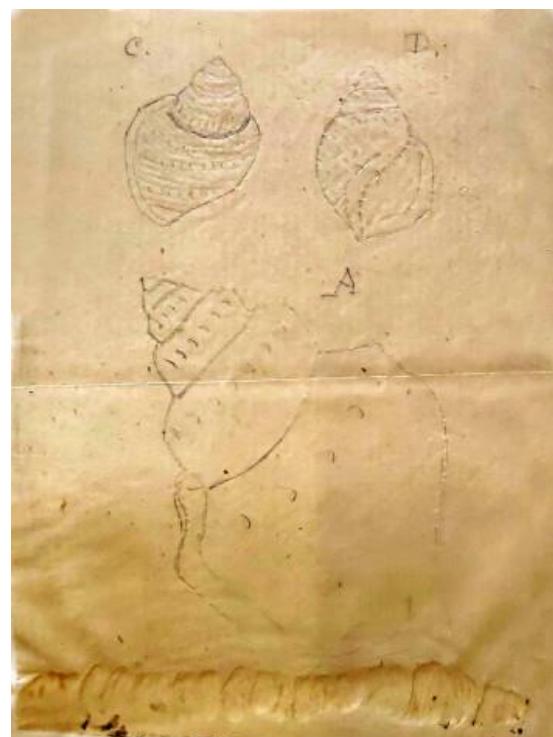



Fig. 14. Drawing by P. H. Fischer inserted in a letter dated 4 October 1877 sent to M. Paulucci, preserved in ASFI-APXA.

molluscs, oceanographer. 10 letters, box 239 in ASFI-APXA, 1873-1895, in French. Bajonne, Port de Bajonne. Breure & Audibert (2017), Coan & Kabat (2021).

Friedländer & Sohn (Germany), (Fig. 15). Bookshop and publishing house in Berlin. Raphael Friedländer founded the Friedländer & Sohn Antiquarian Bookshop in Berlin in 1828.

Berlin, den 17. Dezemb. 1880.
N.W., Carlstrasse 11.

225

RECHNUNG

Sig.a March. Paulucci,
von Villa Novoli presso Firenze.

R. Friedländer & Sohn
Buchhandlung BERLIN N.W., Carlstr. 11.

7853 Zahlbar in Berlin.

1	di Betta, Descriz. d. 2 Conchiglie del Veneto 1852. color.	2	—
1	Benoit, Bibl. Malacol. Ital. 1839.	2	—
1	Da Campo, Nuova Conch. Veronese 1849	1	50
1	Frauenfeld, Paludinen. 1857.	1	50
1	Lowe, Primit. faunae Maderae. 2 pts. 1831-38. ½ color.	10	—
1	—, Primit. et novit. Maderae 1857.	4	50
1	Porro, S. talune varietà. eff. d. Moll 1839.	2	50
1	—, Mém. s. Helix, 1842.	—	60
1	Tarento-Rosso, Gabinetto di Caltagirone. 1844.	6	—
	Porto	1	60
	[Frs. 40.15 =] Mk.	32	40

Aprile 12 Briganti Elenco M 2.35
Scacchi Catalogo 2.80
Maggio 25 Pfeiffer 3 pts.
Bourguignat Conchyl. } 33 — 38 15
totale M 70.25

Fig. 15. Friedländer & Sohn receipt, preserved in ASFI-APXA.

Since 1853, it was specialized in Natural History. In 1953, it celebrated its 125th anniversary. It still exists and is located at 26 Schlesische Strasse in the Kreuzberg district. 27 letters, box 51 in ASFI-APXA, 1875-1881, in Italian. Berlin.

Gal [Frères] (?-?; France). Dealer of natural marine specimens, especially shells and other invertebrates. The contact with Paulucci was done through Verany. 3 letters, box 51 in ASFI-APXA, 1876, in French. Nice.

Gassies, Jean-Baptiste (1816-1883; France). Curator of the Musée préhistorique de Bordeaux, author, collector of recent continental molluscs. 25 letters and 1 paper, box 239 in ASFI-APXA, 1866-1882, in French. Bordeaux, Paris. Breure & Audibert (2017), Coan & Kabat (2021).

Gentile, Giacomo (1835-1906; Italy), (Pl. 5, Fig. F). Pharmacist, teacher (in natural history), author, collector of recent continental molluscs, botanist and chemist. 5 letters and 1 post-card box 239 in ASFI-APXA, 1882, in Italian. Porto Maurizio (Imperia).

Gentiluomo, Camillo (1844-1928; Italy), (Pl. 5, Fig. G). Author, collector of recent continental and marine molluscs. 22 letters and 1 post-card in box 239 in ASFI-APXA, 1868-1881, in Italian. Pisa. Manganelli *et al.* (2017), Coan & Kabat (2021).

Gloyne, Charles Papps (1840-1900; United Kingdom). Author, collector of recent continental molluscs. 3 letters, box 239 in ASFI-APXA, 1876-1877, in French. Pembroke Dock (Wales), Pistoia. Breure & Audibert (2017), Coan & Kabat (2021).

Goldfuss, Otto Gottfried (1831-1905; Germany), (Pl. 5, Fig. H). Son of the German zoologist Prof. Georg August Goldfuss, author, collector of recent continental molluscs. 3 letters, box 239 in ASFI-APXA, 1881-1883, in German. Halle (Saale). Coan & Kabat (2021).

Goupy & Jordan (France). Printing press located in Paris, Rue de Rennes 71, which printed in 1878 the Materiaux in 300 copies, on behalf of the F. Savy bookshop in Paris. 1 letter, box 51 in ASFI-APXA, 1878, in French. Paris.

Granata, Grillo Giuseppe (1857-?; Italy). Civil engineer, author, collector of recent marine molluscs. 1 letter, box 239 in ASFI-APXA, 1878, in Italian. Messina. Breure & Audibert (2017), Coan & Kabat (2021).

Gray, Arthur Fairfield (1855-1944; United States of America). American civil engineer, architect, collector of recent continental molluscs. 1 letter, box 239 in ASFI-APXA, 1883, in English. Davenport (U.S.A.). Breure & Audibert (2017), Coan & Kabat (2021).

Gredler, Vincenz Maria (1823-1912; Austria), (Pl. 5, Fig. I). Franciscan monk, teacher (in natural history), author, collector of recent continental molluscs, entomologist, botanist, geologist. 2 letters, box 239 in ASFI-APXA, 1879-1882, in Italian. Bolzano, Loznu. Coan & Kabat (2021).

Hanley, Sylvanus Charles Thorpe (1819-1899; United Kingdom). Author, collector of recent marine molluscs. 1 letter, box 239 in ASFI-APXA, 1877, in French. Florence. Coan & Kabat (2021).

Hidalgo, Joaquin Gonzalez y Rodriguez (1839 -1923; Spain), (Pl. 6, Fig. A). Physician, university lecturer (in zoology and mineralogy), author, collector of recent marine molluscs. 2 letters, box 239 in ASFI-APXA, 1880, in French. Madrid. Breure & Backhuys (2017a), Breure & Audibert (2017), Coan & Kabat (2021).

Hinrichs (Leipzig, Germany). Leipzig bookshop, founded in 1791, known for its catalogues full of titles. 4 letters, box 51 in ASFI -APXA, 1875, in German. Leipzig.

Issel, Arturo (1842-1922; Italy), (Pl. 6, Fig. B). University lecturer (in geology) in Genoa, author, collector of marine and continental molluscs. 6 letters, box 239 in ASFI-APXA, 1866-1882, in Italian. Genoa. Manganelli *et al.* (2017), Breure & Audibert (2017), Coan & Kabat (2021).

Jago, George Giovanni (1818-1900; Italy). Dealer, collector of fossil and recent marine molluscs. 7 letters, box 239 in ASFI-APXA, 1865-1868, in Italian. Leghorn. Manganelli *et al.* (2017), Coan & Kabat (2021).

Jeffreys, Gwyn (1809-1885; U. K.), (Pl. 6, Fig. C). Jeffreys worked as a solicitor in Swansea until 1856, when he was called to the bar in London. In 1866, Jeffreys retired as lawyer, and dedicated himself to malacology, especially on marine molluscs, participating in several field research campaigns. 4 letters and 1 post-card, box 239 in ASFI-APXA, 1866-1882, in English. London, Ware Priory (Hertford). Breure & Audibert (2017), Coan & Kabat (2021).

Jousseaume, Félix-Pierre (1835-1921; France), (Pl. 6, Fig. D). Physician, author, collector of recent marine molluscs 3 letters, box 239 in ASFI-APXA, 1880, in French, Paris. Van Gemert & Breure (2017), Breure (2020), Coan & Kabat (2021).

Juba de L'Hôtellerie P. (?-?; France). Academy officer, correspondent of the Ministry of Public Education, archaeologist and shell collector and dealer of North-African molluscs. 1 letter, box 239 and 1 letter box 51 in ASFI-APXA, 1882, in French. Paris, Alexandria. Breure (2015), Coan & Kabat (2021).

Kobelt, Wilhem (1840-1916; Germany), (Pl. 6, Fig. E). Physician, author, collector of recent continental and marine molluscs. 9 letters, box 239 in ASFI-APXA, 1877-1882, in Italian. Schwanheim (Frankfurt), Naples. Breure & Audibert (2017), Coan & Kabat (2021).

Landauer, M.J. (?-?; Germany). Dealers of shells and mineralogy, author, collector of fossil marine molluscs. 1 letter, box 239 and 14 letters, box 51 in ASFI-APXA, 1862-1878, in French. Frankfurt. Backhuys (2008), Breure & Audibert (2017), Coan & Kabat (2021).

Lawley, Roberto (1818-1881; Italy), (Pl. 6, Fig. F). Landowner, geologist, ichthyologist, named a fossil shark after Paulucci. 5 letters, box 239 and 2 letters, box 51 in ASFI-APXA, 1865-1880, in Italian. Montecchio (Pisa). Manganelli *et al.* (2006), Manganelli *et al.* (2017).

Lessona, Mario (1855-1911; Italy), (Pl. 6, Fig. G). University assistant (in zoology) in Messina, teacher (in natural history) in Venice and Turin, author, collector of recent continental molluscs. 3 letters, box 239 in ASFI-APXA,

1881-1882, in Italian. Turin. Manganelli *et al.* (2017), Coan & Kabat (2021).

Linnea Institut Naturhistorisches (Germany). 1 letter, box 239 and 1 letter, box 51 in ASFI-APXA, 1882, in French. Frankfurt. Signed by A. Vidal and Müller.

Locard, Étienne Alexandre Arnould (1841-1904; France), (Pl. 6, Fig. H). Civil engineer, author, collector of recent continental molluscs. 6 letters, box 239 in ASFI-APXA, 1881-1882, in French. Lyon. Breure & Audibert (2017), Coan & Kabat (2021).

Loescher (Italia). Herman Loescher was born in Leipzig, in 1861. He took over an international bookshop in Turin that had belonged to Gustav Hahmann. In 1865 he opened a bookshop in Florence, and in 1870 another in Rome. He began his publishing business in 1867. 8 shipping receipts, box 51 in ASFI-APXA, 1867-1881, in Italian. Florence.

Major Forsyth, Immanuel Carlo (1843-1923; United Kingdom), (Pl. 6, Fig. I). Physician, author, collector of recent continental molluscs, also palaeontologist. 1 letter, box 239 (with the copy of Paulucci's answer) in ASFI-APXA, 3 letters in MZUF, 1877-1891, in Italian. Porto Santo Stefano, Florence. Manganelli *et al.* (2017), Coan & Kabat (2021).

Maler, Teoberto (1842-1917; Germany/Mexico), (Pl. 7, Fig. A). Architect, archaeologist, photographer and soldier, collector of recent continental molluscs. 1 letter, box 239 in ASFI-APXA, 1878, in French. Paris. Coan & Kabat (2021).

Maltzan, Hermann Friedrich Joachim von (1843-1891; Germany), (Pl. 7, Fig. B). Nobleman, poet, collector of recent continental and marine molluscs, founder of the Natural History Museum in Maltzan (Meklenburg). 1 letter, box 239 in ASFI-APXA, 1882, in French. Frankfurt. Breure & Audibert (2017), Coan & Kabat (2021).

Manzella, Alberto (?-?; Italy). Painter and engraver of the book "Iconografia della avifauna italica ovvero descrizioni e tavole illustranti le specie di uccelli che trovansi in Italia di Enrico Hillyer Giglioli (1879-1906)". 1 letter, box 51 in ASFI-APXA, 1880, in Italian. Prato.

Marinoni, Camillo (1845-1882; Italy), (Pl. 7, Fig. C). Teacher (in natural history) in Caserta and Pavia, author, collector of fossils marine molluscs. 3 letters, box 239 in ASFI-APXA, 1866, in Italian. Milan, Pavia. Manganelli *et al.* (2017).

Marinoni, Luigi (?-?; Italy). Brother of Camillo Marinoni. 2 letters, box 239 in ASFI-APXA, 1866, in Italian. Milan, Florence.

Martorell y Pena, Frances (1822-1878; Spain), (Pl. 7, Fig. D). Trader, naturalist, archaeologist and numismatist, author, collector of fossil and recent continental and marine molluscs. 2 letters, box 239 in ASFI-APXA, 1869-1870, in French. Barcelona. Coan & Kabat (2021).

Mascarini, Alessandro (1847-1898; Italy), (Pl. 7, Fig. E). Teacher (in natural sciences) in Ascoli Piceno, author, collector of recent continental molluscs, botanist, director of the Natural History Museum ("Museo Orsini") in Ascoli Piceno, Italy. 7 letters, box 239 in ASFI-APXA, 1877-1880, in Italian. Ascoli Piceno. Manganelli *et al.* (2017).

Meli, Romolo (1852-1921; Italy), (Pl. 7, Fig. F). University lecturer (in geology) in Rome and professor at engineer schools, author, collector of fossils marine molluscs. 4 letters, box 239 in ASFI-APXA, 1880-1881, in Italian. Rome. Manganelli *et al.* (2017).

Meneghini, Giuseppe (1811-1889; Italy), (Pl. 7, Fig. G). University lecturer (in geology) in Pisa, politician, author, collector of fossil marine molluscs. 2 letters, box 239 in ASFI-APXA, 1880-1882, in Italian. Pisa. Manganelli *et al.* (2017), Coan & Kabat (2021).

Michelotti, Giovanni (1812-1898; Italy), (Pl. 7, Fig. H). Lawyer, employed at the Ministry of Agriculture, author, collector of fossil and recent marine molluscs, palaeontologist. 14 letters, box 239 in ASFI-APXA, 1866-1871, in Italian. Turin, Rome, Orbassano. Manganelli *et al.* (2017), Coan & Kabat (2021).

Molteni, Luigi (?-?; Italy). Chief inspector of the railways in Foligno in the 1870s, collector of recent continental molluscs. 4 letters, box 239 in ASFI-APXA, 1877, in Italian. Foligno, Rome. Manganelli *et al.* (2017).

Monjo, Monji [Pere] (1847-1931; Spain), (Pl. 7, Fig. I). Painter, teacher, curator of the Museu Municipal de Maò, today Museu di Mahon in Mallorca, collector of recent continental and marine molluscs. 3 letters, box 239 in ASFI-APXA, 1881-1882, in French. Mahon (Mallorca).

Morlet, Laurent Joseph (1813-1892; France). Military, author, collector of fossil and recent continental and marine molluscs. 18 letters, box 239 in ASFI-APXA, 1877-1882, in French.

Montremil (Paris). Breure & Audibert (2017), Coan & Kabat (2021).

Morelet, Pierre Marie Arthur (1809-1892; France), (Pl. 8, Fig. A). Naturalistic illustrator, author, collector of recent continental molluscs. 3 letters, box 239 in ASFI-APXA, 1880, in French. Chateaux de Velars (Dijon). Breure & Audibert (2017), Breure *et al.*, (2018), Coan & Kabat (2021).

Mousson, Johann Rudolf Albert (1850-1890; Switzerland), (Pl. 8, Fig. B). University lecturer (in physics), author, collector of recent continental molluscs. 3 letters, box 239 in ASFI-APXA, 1876-1877, in French. Zurich. Breure & Audibert (2017), Coan & Kabat (2021).

Nevill, Geoffry (1843-1885; United Kingdom/ India). Assistant superintendent of the Indian Museum in Calcutta (presently Kolkata), author, collector of fossil and recent continental molluscs. 5 letters, box 239 and 1 letter box 51 in ASFI-APXA, 1878-1880, in French. Paris, London, Menton, Calcutta. Breure & Audibert (2017), Coan & Kabat (2021).

Nolan, Edward James (1846-1921; United States of America). Librarian of the Academy of Natural Science of Philadelphia. 1 letter, box 239 in ASFI-APXA, 1883, in Italian. Philadelphia (Academy of Natural Sciences, Philadelphia, 2023).

Otting, Maximillian von (1815-1901; Germany). Bavarian Obersthofmarschall (administrative officer). 5 letters and 1 list, box 239 in ASFI-APXA, 1876-1881, in French. Munich. Coan & Kabat (2021).

Pantanelli, Dante (1844-1913; Italy), (Pl. 8, Fig. C). University lecturer (in geology) in Siena and Modena. 25 letters and 6 post-cards, box 239 in ASFI-APXA 1876-1883, in Italian. Siena, Modena. Manganelli *et al.* (2017), Breure & Audibert (2017), Coan & Kabat (2021).

Paravia (Italy). Publishing house and bookshop in Turin founded in 1600, in 1800, it had a national development by opening branches in Florence (Via Tornabuoni), Rome, Milan and Naples. A receipt, box 51 in ASFI-APXA, undated. Avanzi (1935).

Parreyss, Ludwig (1799-1879; Germany), (Pl. 8, Fig. D). He was a very renowned collector and dealer in natural history objects, not only shells, author, collector of recent continental and marine molluscs. 1 letter, box 239 and 4 letters, box 51 in ASFI-APXA, 1875-1877, in German. Wien. Backhuys (2008), Breure & Audibert (2017), Coan & Kabat (2021).

Paulucci, Giuseppe (1810?-1881?; Italy). Naval officer, cousin of Marianna Paulucci. 1 letter, box 239 in ASFI-APXA, in Italian, without date and locality, probably Florence.

Paulucci, Paolino (1850-1939; Italy), (Pl. 8, Fig. E). Military, cousin of Marianna Paulucci. 1 letter, box 239 in ASFI-APXA, 1877, in Italian. Without locality.

Pecchioli, Vittorio (1790-1870; Italy), (Pl. 8, Fig. F). Merchant, author, collector of fossil marine and recent continental molluscs, entomologist. 4 letters, box 239 in ASFI-APXA, 1866-1869, in Italian. Settignano (Florence). Coan & Kabat (2021).

Pegorari, Luigi (1842-1885; Italy). Teacher (natural science) in secondary school in Aosta, author, collector of recent continental molluscs. 2 letters and 1 post-card, box 239 in ASFI-APXA, 1882, in Italian. Aosta. Manganelli *et al.* (2017).

Pfeiffer, Louis Carl Georg (1805-1877; Germany), (Pl. 8, Fig. G). Physician, author, collector of recent marine and continental molluscs, botanist. 1 letter, box 239 in ASFI-APXA, 1874, in French. Kassel. Neubert *et al.* (2020), Coan & Kabat (2021).

Pini, Napoleone (1835-1907; Italy), (Pl. 8, Fig. H). Lawyer, author, collector of recent continental molluscs, entomologist. 11 letters, box 239 in ASFI-APXA, 1876-1883, in Italian. Milan. Manganelli *et al.* (2017), Breure & Audibert (2017), Coan & Kabat (2021).

Pirona, Giulio Andrea (1822-1895; Italy), (Pl. 8, Fig. I). Physician, author, collector of fossil and recent marine and continental molluscs. 2 letters, box 239 in ASFI-APXA, 1881-1882, in Italian. Udine. Manganelli *et al.* (2017), Coan & Kabat (2021).

Pisani, Giuseppe (1808-1885; Italy), (Pl. 9, Fig. A). Military, collector, and scholar of minerals especially from Elba Island and the Tuscan Archipelago, collector of fossil marine molluscs. 3 letters, box 239 in ASFI-APXA, 1864-1875, in Italian. Viareggio, San Piero in Campo (Elba Island). Carpinacci (2016).

Pollonera, Carlo (1849-1923; Italy), (Pl. 9, Fig. B). Painter, collaborator of the Turin Museum, author, collector of recent continental molluscs. 1 letter, box 239 in ASFI-APXA, 1882, in Italian. Turin. Manganelli *et al.* (2017), Coan & Kabat (2021).

Pons d'Hauterive, Léopold (1819-1901; France). Author, collector of recent continental molluscs. 1 letter, box 239 in ASFI-APXA, 1 letter in MZUF, 1882, in French. Espalion (Aveyron). Coan & Kabat (2021).

Ponsonby-Fane, John Henry (1848-1916; United Kingdom), (Pl. 9, Fig. C). Banker, author, collector of recent continental molluscs. 20 letters, box 239 in ASFI-APXA, 1880-1883, in French. London. Breure & Audibert (2017), Coan & Kabat (2021).

Ragusa, Enrico (1849-1924; Italy), (Pl. 9, Fig. D). Manager and owner of several hotels. Entomologist, author, and collector of recent continental molluscs. 1 letter box 239 in ASFI-APXA, 1883, in Italian. Palermo. Notes: founded the periodical "Il Naturalista Siciliano"(1881). Alzona (1971).

Ramu, L. (?-?; Switzerland). 1 letter, box 51 in ASFI-APXA, 1879, in French. Genève.

Rawson, William (1812-1899; United Kingdom), (Pl. 9, Fig. E). Politician, colonial secretary at the Cape of Good Hope from 1854 to 1864, employed in Board of Trade in Canada, South Africa and other countries, collector of recent marine molluscs, botanist. 1 letter, box 239 in ASFI-APXA, 1880, in French. Florence. Coan & Kabat (2021).

Reuleaux, Carl or Karl (1826-1902; Germany). Engineer and poet, collector of recent continental molluscs. 1 letter in MZUF, 1889, in Italian. Munich, Bavaria. Aescht & Bisenberger (2019).

Rigacci Giovanni (1816-1871; Italy), (Pl. 9, Fig. F). Merchant, collector of fossil and recent continental and marine molluscs. 3 letters, box 239 in ASFI-APXA, 1867-1870, in Italian. Rome. Coan & Kabat (2021).

Robillard, Victor de (1856-1884; France). Mauritian physician and naturalist, an active member of the Natural History Society of Mauritius. 29 letters, box 239 and 2 letters, box 51 in ASFI-APXA, 1872-1882, in French. Mauritius Island. Breure & Audibert (2017), Coan & Kabat (2021), JSTOR (2022).

Rogers, Thomas (1827-1901; United Kingdom), (Pl. 9, Fig. G). Author, collector of recent continental molluscs, botanist. 2 letters, box 239 in ASFI-APXA, 1883, in English. Manchester. Coan & Kabat (2021).

Saint Simon, Guillaume Camille Alfred de Candie (1823-1895; France), (Pl. 9, Fig. H). Nobleman, author, collector of recent continental molluscs. 21 letters, box 239 in ASFI-APXA, 1877-1882, in French. Toulouse, Paris. Breure & Audibert (2017), Coan & Kabat (2021).

Sampson, Francis Asbury (1842-1918; United States of America), (Pl. 9, Fig. I). Lawyer, author, collector of fossil and recent continental molluscs. 1 letter, box 239 in ASFI-APXA, 1879, in English. Sedalia (U.S.A.). Note: the letter is sent to Cesare Caroti. Coan & Kabat (2021).

Savy, François Paul (?-?; France), (Fig. 16). Publisher and bookshop owner in Paris and with offices in London. 3 letters, box 239 and 90 letters and 17 invoices, box 51 in ASFI-APXA, 1864-1884, in French. Paris.

LIBRAIRIE F. SAVY
77, BOULEVARD SAINT-GERMAIN, 77
PRÈS LA RUE HAUTEFEUILLE

206

Madame Paulucci

Paris, le 30 Juin 1878

1878 Janvier 31 1 Conchologie ... 338.339 — 25
1 Crosse ... Scientifique ... VII — 14
Affr. par la poste — 1
Février 15 ... — 5
avril 29 ... — 4
mai 10 ... 128 — 5 40
21 ... — 3 30
1 Conchologie ... 340 341 — 25
1 ... — 36
24 1 ... Conchyliologie de Nanking ... — 30
1 ... de Zoologie — 17
Juin 22 1 Conchologie ... — 13
1 ... — 15 50
27 1 ... — 1 50
1 ... — 12

471 85
Reçu à valoir 300
171 85

Fig. 16. F.P. Savy receipt, preserved in ASFI-APXA.

Schimper, Wilhelm Philippe (1808-1880; France), (Pl. 10, Fig. A). Museum director (in natural history) of Strasbourg, botanist. 3 letters, box 239 in ASFI-APXA, 1875-1877, in French. Strasbourg. Coan & Kabat (2021).

Senoner, Adolf (1805-1895; Austria), (Pl. 10, Fig. B). Geologist and botanist, librarian of the Royal Geological Institute in Wien. 9 letters, box 239 in ASFI-APXA, 1879-1880, in Italian. Wien. Coan & Kabat (2021).

Société de Borda (Dax, France). Company created in 1876, its name due to J.F. de Borda d'Oro (1718-1804), naturalist and J.C. de Borda (1733-1799), a sailor and mathematician. From

its beginning, the Society published a Bulletin with contents devoted mostly to archaeology; letters signed by G. de Lautaulade and Teisfaindier. 4 letters, box 239 in ASFI-APXA, 1878-81, in French. Dax.

Società Tecnica Ingegneria ed Industria Firenze (Florence, Italy). Company established in 1874 with the purpose of supplying machines, tools, teaching materials for schools, supplies and commerce. 2 receipts, box 51 in ASFI-APXA, 1881, in Italian. Florence.

Sordelli, Ferdinando (1837-1916; Italy), (Pl. 10, Fig. C). Vice-director and curator of the Natural History Museum in Milan, author, collector of continental molluscs, herpetologist, palaeontologist and botanist. 2 letters and 1 post-card, box 239 in ASFI-APXA, 1881-1882, in Italian. Milan. Manganelli *et al.* (2017), Breure & Audibert (2017).

Sowerby, George Brettingham, III (1843-1921; United Kingdom), (Pl. 10, Fig. D). Dealers of natural objects, mainly shells, author. 10 letters, box 239 and 34 letters, box in ASFI-APXA, 1866-1881, in French, Italian and English. London. Breure & Audibert (2017), Coan & Kabat (2021).

Stabile, Giuseppe (1826-1869; Italy), (Pl. 10, Fig. E). Abbot, author, collector of recent continental molluscs, entomologist. 2 letters, box 239 in ASFI-APXA, 1866-1867, in Italian. Milan. Breure & Audibert (2017), Coan & Kabat (2021).

Stalio Luigi (1799-1882; Italy), (Pl. 10, Fig. F). Nautical professor at the merchant marine school in Venice, author, collector of recent marine molluscs, botanist. 1 business card, box 239 in ASFI-APXA, 1879, in Italian. Venice. Giordani Soika (1950), Manganelli *et al.* (2017), Coan & Kabat (2021).

Statuti, Augusto (1829-1911; Italy), (Pl. 10, Fig. G). Engineer and architect, author, collector of recent continental molluscs. 13 letters and 1 post-card, box 239 in ASFI-APXA, 1870-1882, in Italian. Anticoli Corrado (Rome), Florence, Rocca di Papa, Rome. Manganelli *et al.* (2017), Coan & Kabat (2021).

Stoppani, Antonio (1824-1891; Italy), (Pl. 10, Fig. H). Abbot, politician, university lecturer (in geology), author, collector of fossil marine molluscs. 1 letter, box 23 in ASFI-APXA, 1881, in Italian. Florence. Cioppi & Dominici, (2001), Coan & Kabat (2021).

Stossich, Adolf (1842-1900; Italy), (Pl. 10, Fig. I). Teacher (in natural history), author, collector of recent continental and marine molluscs. 13 letters, box 239 in ASFI-APXA, 1876-1883, in Italian. Trieste. Backhuys (2008), Breure & Audibert (2017), Coan & Kabat (2021).

Strobel, Pellegrino (1821-1895; Italy), (Pl. 11, Fig. A). University lecturer (in geology) and politician, author, collector of recent continental molluscs. 3 letters, box 239 in ASFI-APXA, 1880, in Italian. Traversetolo (Parma), Vignale di Traversetolo (Parma), Parma. Manganelli *et al.* (2017), Coan & Kabat (2021).

Studer, Theophil (1845-1922; Switzerland), (Pl. 11, Fig. B). University lecturer (in zoology and comparative anatomy) in Bern, curator of the zoological collections at the museum of natural history in Bern, author, collector of recent marine molluscs, ornithologist and marine biologist. 4 letters, box 239 in ASFI-APXA, 1879-1881, in French. Bern. Coan & Kabat (2021).

Sulliotti, Giorgio Roberto (1859-1925; Italy), (Pl. 11, Fig. C). Lawyer, author, collector of recent continental and marine molluscs, palaeontologist. 3 letters and 1 post-card, box 239 in ASFI-APXA, 1882-1883, in Italian. Porto Maurizio (Imperia). Manganelli *et al.* (2017), Coan & Kabat (2021).

Suter-Naef Hans Heinrich (1841-1918; Switzerland/New Zealand), (Pl. 11, Fig. D). Chemist, author, collector of recent continental and marine molluscs. 8 letters and 1 post-card, box 239 in ASFI-APXA, 1881-1883, in French. Zurich. Breure & Audibert (2017), Coan & Kabat (2021).

Tapparone Canefri, Cesare Maria (1838-1891; Italy), (Fig. 17, Pl. 11, Fig. E). Museum curator (zoology) of Turin and Genoa, teacher (natural history), author, collector of recent continental and marine molluscs. 41 letters, box 239 and 1 letter, box 51 in ASFI-APXA, 1867-1883, in Italian. Turin, Genoa, Wurzburg, Quattordio (Alessandria). Manganelli *et al.* (2017), Breure & Audibert (2017), Coan & Kabat (2021).

Fig. 17. Drawing by C. Tapparone Canefri inserted in a letter dated 14 March 1874 sent to M. Paulucci, preserved in ASFI-APXA.

Targioni Tozzetti, Adolfo (1823-1902; Italy), (Pl. 11, Fig. F). University lecturer (zoology) in Florence, author, collector of continental molluscs, entomologist. 12 letters, box 239 and 1 letter, box 51 in ASFI-APXA, 1876-1883, in Italian. Florence, Berlin. Manganelli *et al.* (2017), Breure & Audibert (2017), Coan & Kabat (2021).

Thielens, Armand (1833-1878; Belgium), (Pl. 11, Fig. G). Belgian vinegar manufacturer in Tirlemont, author and collector of recent continental molluscs, botanist. 15 letters, box 239 in ASFI-APXA, 1867-1876, in French. Tirlemont (Bruxelles). Breure & Audibert (2017), Coan & Kabat (2021).

Tiberi, Nicola (1810-1885; Italy). Physician, author, collector of recent marine and continental molluscs. 5 letters, box 239 in ASFI-APXA, 1877-1879, in Italian. Portici (Naples). Manganelli *et al.* (2017), Breure & Audibert (2017), Coan & Kabat (2021).

Tipografia dell'Ancora, Siena. Printer press in Siena, located at the time in Via delle Terme 23, printer of the Bullettino della Società Malacologica. 1 letter, box 51 in ASFI-APXA 1882, in Italian. Siena.

Tommasi, Anselmo (1875-1890; Italy), (Pl. 11, Fig. H). Landowner, politician, author, collector of recent continental molluscs. 14 letters, box 239 in ASFI-APXA, 1876-1880, in Italian. Castelgoffredo (Mantua). Manganelli *et al.* (2017), Coan & Kabat (2021).

Tournouër, Jacques Raoul (1822-1882; France), (Pl. 11, Fig. I). Lawyer, palaeontologist, collector of fossil marine molluscs. 3 letters, box 239 in ASFI-APXA, 1880, in French. Paris. Breure & Audibert (2017), Coan & Kabat (2021).

Tryon Jr., George Washington (1838-1888; United States of America), (Pl. 12, Fig. A). Museum curator (in malacology), author, collector of recent marine and continental molluscs. 1 letter, box 239 in ASFI-APXA, 1882, in English. Philadelphia. Breure & Audibert (2017), Coan & Kabat (2021).

Uzielli, Vittorio (1841-?; Italy). Banker, author, collector of recent continental molluscs. 3 letters, box 239 in ASFI-APXA, 1866-1877, in Italian. Leghorn. Manganelli *et al.* (2017), Breure & Audibert (2017).

Valentini, Eugenio (1829-1894; Italy). Engineer and professor of mathematics, author, collector of recent continental molluscs. 7 letters, box 239 in ASFI-APXA, 1873-1878, in Italian. Ascoli Piceno. Manganelli *et al.* (2017), Coan & Kabat (2021).

Vérany, Jean-Baptiste (1800-1865; France), (Pl. 12, Fig. B). Pharmacist, naturalist, specialised in the study of cephalopods and nudibranchs, author, collector of fossil marine molluscs. 6 letters, box 239 in ASFI-APXA, 1863-1866, in French. Nice. Coan & Kabat (2021).

Verdey, Adèle (?-?; France). 2 letters, box 51 in ASFI-APXA, without date, in French. Paris. Note: She offered a box with stuffed birds, some from Verreaux.

Verkrüzen, Theodor Anton (1807-1896; Germany/United Kingdom), (Pl. 12, Fig. C). Dealer, professional shell collector, author, collector of recent marine molluscs. 15 letters, box 239 in ASFI-APXA, 1876-1877, in French. Frankfurt. Coan & Kabat (2021).

Vieusseux, Julie (1820-1878; Netherland/Australia), (Pl. 12, Fig. D). Australian painter and educator. She was the founder and manager of the Viesseux Ladies' College in Melbourne, between 1857 and 1878. 1 letter, box 239 in ASFI-APXA, 1875, in French. Clarendon (East Melbourne, Australia).

Vieusseux (Fig. 18). Scientific-literary institute based in Florence founded in 1820 by Giovan Pietro Vieusseux. 6 receipts, box 51 in ASFI-APXA, 1874-1881, in Italian. Florence.

188.

Firenze, a dì 28 Luglio 1874.

Dare La Sig.ra Marchesa Marianna Paolucci

Al Gabinetto Scientifico Letterario di G. P. VIEUSSEUX

1 Pfeiffer, Conchologicae dispensa 31 a 45 a Fr. 7.50	Fr. 112.50
1 Dunker, Conchologicae dispensa 14 a 15 a Fr. 7.50	15.—
1 Dunker, Conchologicae dispensa 16 a	3.20
1 Hornes, Die Fossilen Volume II dispensa 9 a 10	22.50
Aggio dell'11% pel pagamento in carta	16.80
	170.—
Sconto	15.—
Restano	155.—
2 Fotografie	5
	160
[illegible] per importo del Giornale [illegible]	87.86
	72.14

Saldato per G.P. Vieusseux [illegible]

Fig. 18. Gabinetto Vieusseux receipt, preserved in ASFI-APXA.

Vilas von, Hermann Johann (1863-1939; Austria). Lawyer, collector of recent continental molluscs. 3 letters, box 239 in ASFI-APXA, 1881, in Italian. Innsbruck. Note: in the letters, he italianises his name in Arminio de Vilas.

Villa, Antonio (1806-1885; Italy), (Pl. 12, Fig. E). Engineer, author, collector of recent continental molluscs, entomologist and geologist. 6 letters and 3 post-cards, box 239, and 7 letters, box 51 in ASFI-APXA, 1862-82, in Italian. Milan. Manganelli *et al.* (2017), Breure & Audibert (2017), Coan & Kabat (2021).

Vimont, Michel (Vve.) Anna-Zoé (?-1883; France). Shell dealer, collector of recent marine and continental molluscs. 1 letter, box 239 and 9 letters, box 51 in ASFI-APXA, 1874-1880, in French. Paris. Coan & Kabat (2021). A letter may have been written by her husband Michel Vimont.

Westerlund, Carl Agardh (1831-1908; Sweden), (Pl. 12, Fig. F). University lecturer (in zoology) in Ronneby, author, collector of recent continental molluscs, ornithologist and botanist. 24 letters and 1 post-card, box 239, 2 in box 51 in ASFI-APXA, 1875-1883, in French. Ronneby, Malborghetto, Carinthia. Breure & Audibert (2017), Coan & Kabat (2021).

Wetherby, Albert Gallatin (1833-1902; United States of America), (Pl. 12, Fig. G). University lecturer (in natural history) in Cincinnati, author, collector of recent continental molluscs, mineralogist. 5 letters, box 239 in ASFI-APXA, 1879-1881 in English. Cincinnati. Breure & Audibert (2017), Coan & Kabat (2021).

Ximenes Eduardo (1852-1932; Italy), (Fig. 19). One of the Ximenes brothers, author of the plates of Paulucci's work on the Malacological Fauna of Calabria (1880). He collected shells for Paulucci in Palermo. 1 post-card, box 239 in ASFI-APXA, 1882, in Italian. Palermo.

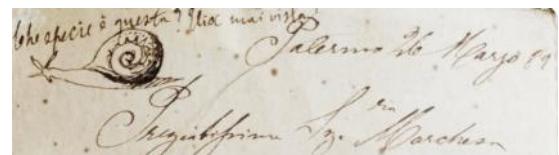
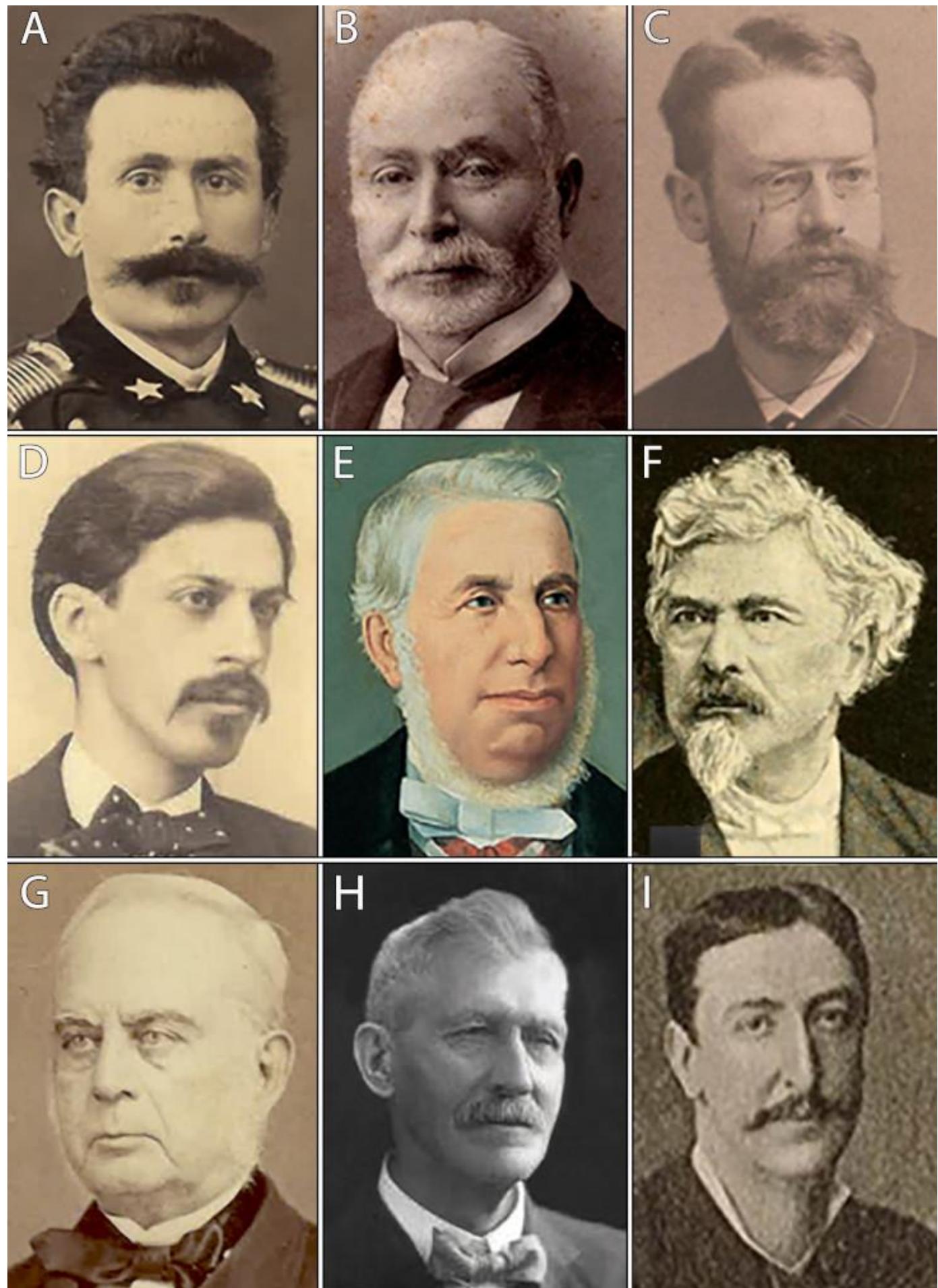
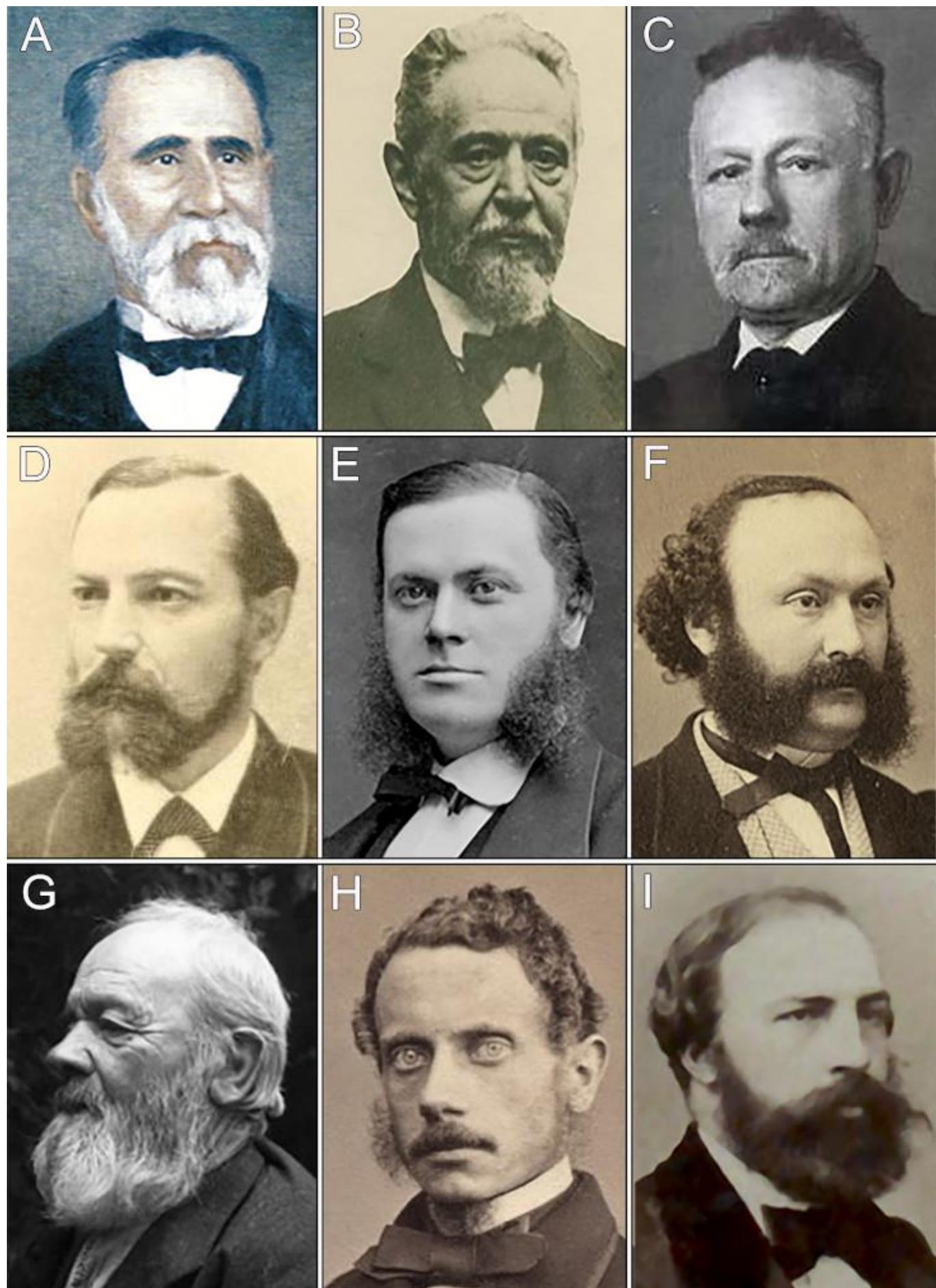



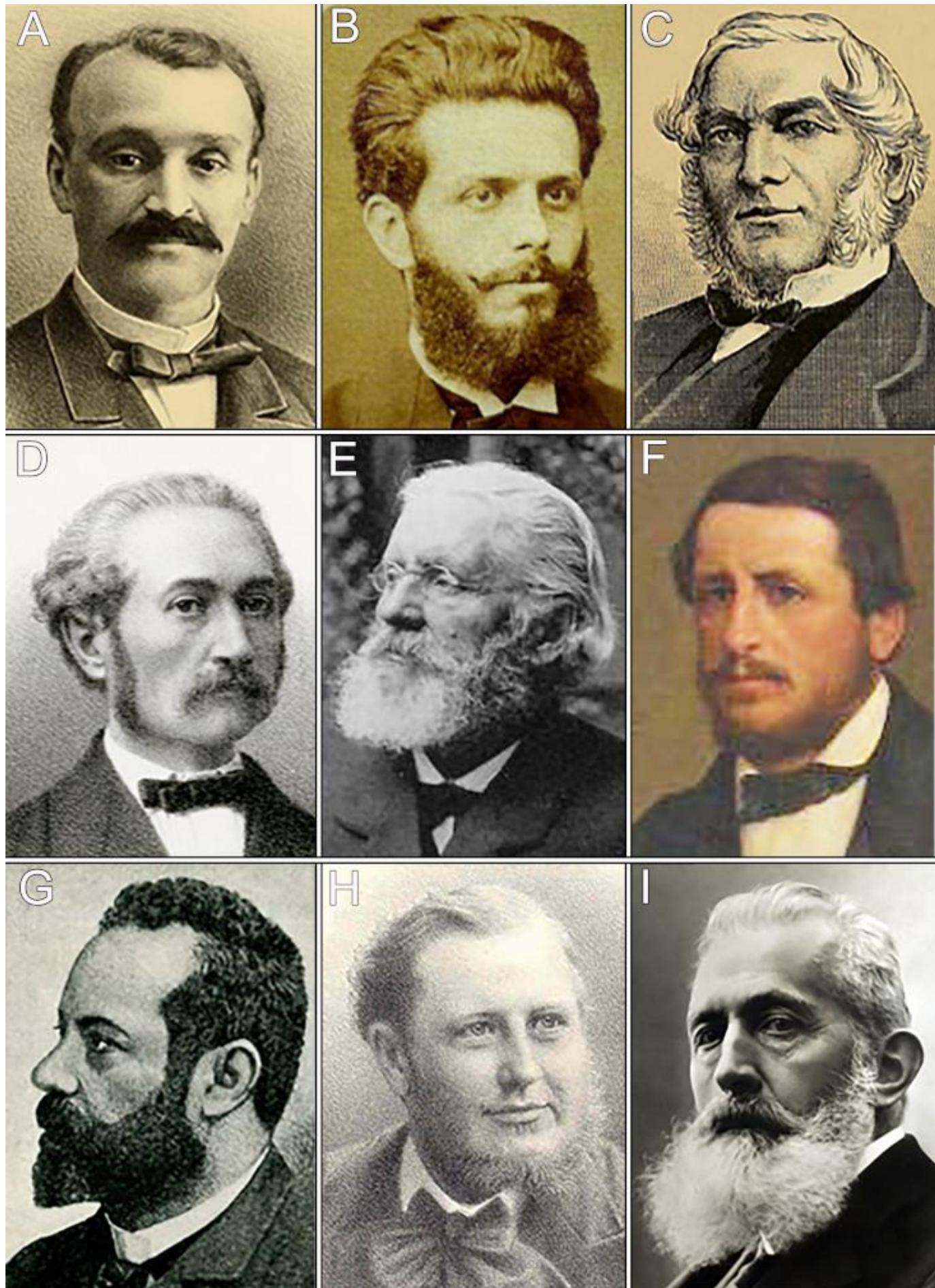
Fig. 19. Drawing by E. Ximenes inserted in a postcard dated 28 March 1889 sent to M. Paulucci, preserved in ASFI-APXA.

Other not ascribable letters

In boxes 239 and 51 in ASFI-APXA, in addition to the above-mentioned letters to her correspondents, 10 letters could not be attributed to any of her correspondents or 19th century authors, as they lacked a signature or the signature was illegible. Six are written in French, three in English and one in Italian.

Pl. 1. A. Adami, Giovanni Battista (SNM); **B**. Allery, di Monterosato, Tommaso di Maria (SIM); **C**. Andreae, Achilles (WP); **D**. Appelius, Federigo (SNM); **E**. Aradas, Andrea (WP); **F**. Baudon, Auguste Adolphe (WP); **G**. Benoit, Luigi (SNM); **H**. Blanchet, Jaques Samuel (courtesy of B. Breure); **I**. Boccaccini, Corrado (from Cossavella, 1902).

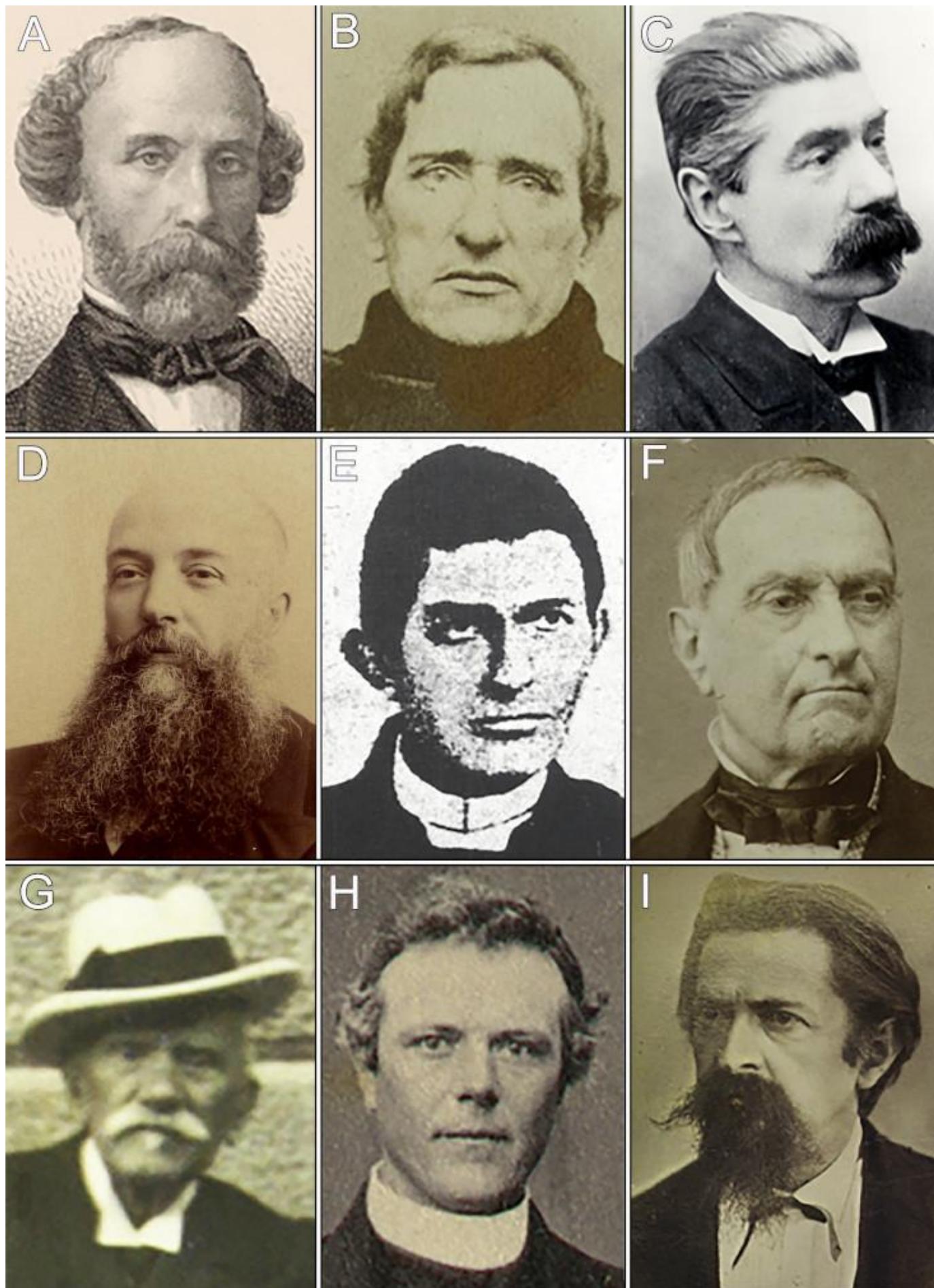
Pl. 2. A. Bock, Carl (WP); **B.** Boettger, Oskar (WP); **C.** Bouè, Ami (WP); **D.** Brogi, Sigismondo (courtesy of F. Barbagli); E. Brot, Auguste Louis (courtesy of the Bibliotèque de Genève); F. Brugnone, Giuseppe [Antonio] (WP); G. Bryce McMurdo Wright Jr. (courtesy of W.E. Wilson); H. Button, Fred (from Merritt, 1928); I. Cafici, Corrado (courtesy of R. Adorno).

Pl. 3. A. Carruccio, Antonio (RP); **B**. Cavanna, Guelfo (RP); **C**. Cerio, Ignazio (from Cerio, 1921); **D**. Clessin, Stefan (from Borchending, 1912); **E**. Cleve, Per Theodor (WK); **F**. Cocchi, Igino (WP); **G**. Coppi, Francesco (WP); **H**. Costa, Achille (WP); **I**. Crosse, Hippolyte (courtesy of B. Breure).

Pl. 4. A. D'Ancona, Cesare (SMA); **B**. De Betta, Francesco Edoardo (RP); **C**. Desor, Pierre Jean Édouard (WP); **D**. De Stefani, Carlo (SMA); **E**. Del Prete, Raimondo (courtesy of Misericordia Viareggio); **F**. Deshayes, Gerard Paul (courtesy of B. Breure); **G**. Dohrn, Wolfgang Ludwig Heinrich (WP); **H**. Doderlein, Pietro (courtesy of the Museum of the University of Modena and Reggio Emilia); **I**. Dupuy, Dominique (WP).

Pl. 5. A. Étienne, Jean Auguste Celestin [Frère Ogérien] (WP); **B**. Fagot, Paul (WP); **C**. Fischer, Paul Henri (WP); **D**. Fitzgerald, Julie [Mrs.] (SNM); **E**. Folin, Alexandre Guillaume Leopold, (WP); **F**. Gentile, Giacomo (courtesy of C. Gentile); **G**. Gentiluomo, Camillo (from Manganelli et al., 2017); **H**. Goldfuss, Otto Gottfried (from Wüst, 1906); **I**. Gredler, Vincenz Maria (RP).

Pl. 6. A. Hidalgo, Joaquin Gonzalez y Rodriguez (WP); **B**. Issel, Arturo (RP); **C**. Jeffreys, Gwyn (WP); **D**. Jousseaume, Félix-Pierre (Shellers of the past); **E**. Kobelt, Wilhem (WP); **F**. Lawley, Roberto (WP); **G**. Lessona, Mario (WP); **H**. Locard, Étienne Alexandre Arnould (WP); **I**. Major Forsyth, Immanuel Carlo (WP).

Pl. 7. A. Maler, Teoberto (WP); **B**. Maltzan, Hermann Friedrich Joachim von (WP); **C**. Marinoni, Camillo (courtesy of F. Barbagli); **D**. Martorell y Pena, Frances (WP); **E**. Mascarini, Alessandro (IA); **F**. Meli, Romolo (IA); **G**. Meneghini, Giuseppe (SMA); **H**. Michelotti, Giovanni (from Sacco, 1895); **I**. Monjo, Monji [Pere] (courtesy of M. Anglada, Museu de Menorca).

Pl. 8. A. Morelet, Pierre Marie Arthur (Shellers of the past); **B**. Mousson, Johann Rudolf Albert (WP); **C**. Pantanelli, Dante (from Manganelli *et al*., 2017); **D**. Parreyss, Ludwig (SNM); **E**. Paulucci, Giuseppe (courtesy of F. Barbagli); **F**. Pecchioli, Vittorio (RP); **G**. Pfeiffer, Louis Carl Georg (WP); **H**. Pini, Napoleone (SMA); **I**. Pirona, Giulio Andrea (WP).

Pl. 9. A. Pisani, Giuseppe (courtesy of A. Alati); **B**. Pollonera, Carlo (WP); **C**. Ponsonby-Fane, John Henry (from Sykes, 1917); **D**. Ragusa, Enrico (RP); **E**. Rawson, William (courtesy of Cory Library at Rhodes University); **F**. Rigacci Giovanni (from Gentiluomo, 1874); **G**. Rogers, Thomas (from Taylor, 1907); **H**. Saint Simon, Guillaume Camille Alfred de Candie (from Fagot, 1885); **I**. Sampson, Francis Asbury (from Greger, 1918).

Pl. 10. A. Schimper, Wilhelm Philippe (WP); **B**. Senoner, Adolf (IA); **C**. Sordelli, Ferdinando (RP); **D**. Sowerby, George Brettingham, III (courtesy of B. Breure); **E**. Stabile, Giuseppe (RP); **F**. Stalio Luigi (IA); **G**. Statuti, Augusto (IA); **H**. Stoppani, Antonio (SMA); **I**. Stossich, Adolf (IA).

Pl. 11. A. Strobel, Pellegrino (WP); **B**. Studer, Theophil (WP); **C**. Sulliotti, Giorgio Roberto (RP); **D**. Suter-Naef Hans Heinrich (WP); **E**. Tapparone Canefri, Cesare Maria (RP); **F**. Targioni Tozzetti, Adolfo (IA); **G**. Thielens, Armand (SMA); **H**. Tommasi, Anselmo (courtesy of A. Franchini); **I**. Tournouër, Jacques Raoul (WP).

Pl. 12. A. Tryon Jr., George Washington (WP); **B**. Verany, Jean Baptiste (from Isnard, 1910); **C**. Verkrüzen, Theodor Anton (SNM); **D**. Vieusseux, Julie (WP); **E**. Villa, Antonio (SMA); **F**. Westerlund, Carl Agardh (WP); **G**. Wetherby, Albert (from Harper, 1902).

Conclusions

The correspondence archive of Marianna Paulucci confirms the major role she played in the development of Italian and European malacology in the second half of the nineteenth century. Furthermore, it testifies to her ability to build an important network of relationships with the leading malacologists of the time, Italian and European, with whom she exchanged opinions and specimens. This network was important for the number and quality of her correspondents, and for the range of topics and contents dealt with. Due to the frequent personal contacts and recurring travels some of her correspondents developed into real friendships as happened with Monterosato, Del Prete, Crosse, Morlet, Gassies, Tapparone Canefri, Fischer, Westerlund and others.

An in-depth study of the content of the correspondence together with the letters written by Paulucci kept at the Museum of Florence and other Italian and European archives will shed light on some unsolved aspects of Paulucci's work and to a better understanding of the reason for some of her theoretical choices that are not yet well understood (Barsanti, 2002). Another important contribution of this archive will be the knowledge of the relationships between the malacology protagonists that characterized this productive period of the nineteenth century.

Moreover, the analysis of the single letters will give a possible cue to the solution of the many nomenclatural problems, as already happened in some cases for the taxa established by Paulucci (Cianfanelli *et al.*, 2021), or the reconstruction of the correct dates of publication (Cianfanelli *et al.* in press), according to the rules of Art. 21 of the ICZN Code (1999) for papers introducing new taxa.

The data contained in this correspondence are an important piece for reconstructing the history of malacology starting from the main scholars of that period, many of whom are correspondents of Paulucci. Following what has been done with the research at the Florence State Archive, it will be necessary to bring to light the enormous cultural heritage contained in the State Archives of other Italian cities, in the University Archives, in the Natural History Museums and in the Italian Libraries, heritage still not adequately known and valued. Much has been published on the subject, but always on individual authors, lacking a general project to support this important subject.

A necessity that Lorenzo Camerano (1856-1917) already felt urgent in 1910, more generally for all Italian zoologists: *"L'Unione Zoologica Italiana dovrebbe, per quanto è possibile, che i documenti che si riferiscono agli zoologi passati, come manoscritti, lettere, sunti delle lezioni, ecc., ora posseduti da privati e perciò di studio sempre difficile, talvolta impossibile, vengano raccolti nelle biblioteche e negli archivii pubblici o nei Musei Zoologici per renderli accessibili agli studiosi e per salvarli da eventuale disperdimento o distruzione"* (Camerano, 1910). ["The Italian Zoological Union should, as far as possible, that documents referring to past zoologists, such as manuscripts, letters, summaries of lessons, etc., now privately owned and therefore always difficult, sometimes impossible to study, should be collected in public libraries and archives or in Zoological Museums to make them accessible to scholars and to save them from possible dispersion or destruction"]. From this point of view, the repertoire presented here could be a first step for the construction of a complete archive of the Italian authors of malacology of the19th century, based on what was proposed by Audibert & Breure (2011), which should then be linked to the wider European one.

The correspondence that has been presented here, essentially in its overall structure, should be studied in detail to carry out further studies related to the Paulucci collection, which is rich in type specimens. Even if many of her contemporaries studied her collection, it is still today a point of reference for specialists for reviews of the regional malacofauna, and we are sure it will still be able to provide useful unpublished data.

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Annexe

Table 1

Synoptic table of Paulucci's correspondents with the chronology of the dates of sending the letters. In some cases, there is no correspondence between the sum of the number of letters entered in the columns of the chronology and the column of the total number of letters; this is because the total number also includes letters that do not have a date.

	Correspon-dent	Gender	Nationality	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	Letters and receipts BOX	Post-cards BOX 239	Letters BOX 51	Letters MZUF	Tot
1	Adami	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	4	-	2	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	1	21
2	Alt & Neu-man	♂	Germany	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	7		7
3	Andreae	♂	Germany	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
4	Appelius	♂	Italy	-	-	-	-	-	1	-	-	-	-	-	-	4	3	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	1	-	-	11
5	Aradas	♂	Italy	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	3
6	Baudon	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	5
7	Benoit	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	6
8	Blanc	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		11	2	-	-	3	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	17	-	-	-	17
9	Blanchette	♂	Italy	-	-	-	3	5	3	3	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	2	-	17
10	Bocca	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	4
11	Boccacini	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
12	Bock	♂	Norwegian/U.K.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2
13	Boetger	♂	Germany	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	2	1	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	13
14	Bolgiano	♂	Germany	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	4
15	Bonanni	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
16	Bouè	♂	Austria	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
17	Briendel	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
18	Brogi	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2
19	Brot	♂	Swit-zerland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2

ZOOOLOGIE

	Correspondent	Gender	Nationality	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	Letters and receipts BOX 239	Postcards BOX 239	Letters BOX 51	Letters MZUF	Tot
20	Brugnone	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2
21	Bryce & Wright	♂	U.K.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
22	Button	♂	U.S.A.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4	2	2	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	10
23	Cafici	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	3	5	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-	-	-	16
24	Caifassi	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	5
25	Caroti	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	3	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-	-	-	16
26	Carruccio	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
27	Castelli	♂	Italy	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
28	Cavanna	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2
29	Cerio	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	5
30	Chevalisy	♂	Belgium	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
31	Clessin	♂	Germany	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	11	5	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	-	-	-	19
32	Cleve	♂	Sweden	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	6
33	Club Alpino Italiano	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2
34	Cocchi	♂	Italy	-	-	3	1	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	6
35	Collier	♂	U.K.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
36	Coppi	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
37	Costa	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	4
38	Crosse	♂	France	-	1	1	5	1	2	2	3	3	-	-	2	-	5	-	6	1	4	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44	-	2	-	46
39	Damon	♂	U.K.	-	-	-	-	6	2	7	9	2	1	2	2	4	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	36	-	36
40	D'Ancona	♂	Italy	-	-	-	1	2	3	-	-	1	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-	9
41	De Betta	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	3	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	10

ZOOOLOGIE

	Correspondent	Gender	Nationality	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	Letters and re-ceipts BOX 239	Postcards BOX 239	Letters BOX 51	Letters MZUF	Tot
42	De Burgh	♀	U.K.	1	1	-	-	-	-	-	1	1	-	-	-	-	1	-	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	-	-	-	22
43	Degréaux	♂	Italy	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	4	-	4
44	Desor	♂	Swit-zerlan	-	-	-	1	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	3
45	De Stefa-ni	♂	Italy	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	2
46	De Stefa-nis	♂	Italy	-	-	-	-	-	-	-	7	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-	9
47	Del Prete	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	9	3	14	8	11	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49	5	-	2	56
48	Des-champs	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	3
49	Deshayes	♂	Swit-zerlan	-	-	-	-	1	2	1	-	3	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	1	-	12
50	Dhorn	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
51	Doder-lein	♂	Poland	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
52	Drouet	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	4	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	19	-	-	2	21
53	Dupuy	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-		4
54	Etienne	♂	France	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		1
55	Fagot	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-	-		16
56	Féret & Fils	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1		2
57	Fischer	♂	France	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	3	4	4	3	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	-	-	1	20
58	Fitz-Gerald	♀	U.K.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2	1	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-	-		16
59	Folin	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	1	2	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	10	-	-		10
60	Friedlän-der &	♂	Ger-many	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	9	-	-	1	9	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	27		27
61	Gal [Frères]	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	3		3
62	Gassies	♂	France	-	-	-	-	-	2	1	-	3	1	-	-	4	1	-	3	4	1	1	1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	1	-		25
63	Gentile	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	1		7
64	Genti-luomo	♂	Italy	-	-	-	-	-	-	-	1	-	5	3	-	1	1	2	2	5	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	-	1		24

ZOOOLOGIE

	Correspondent	Gender	Nationality	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	Letters and receipts BOX 239	Postcards BOX 239	Letters BOX 51	Letters MZUF	Tot
65	Gloyne	♂	U.K.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-		3
66	Goldfus	♂	Germany	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-		3
67	Goupy & Jordan	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1		2
68	Granata Grillo	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		1
69	Gray	♂	U.S.A.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		1
70	Gréaux de Laurent	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	3		6
71	Gredler	♂	Austria	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-		2
72	Hanley	♂	U.K.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		1
73	Hidalgo	♂	Spain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-		2
74	Hinrichs	♂	Germany	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	4		8
75	Issel	♂	Italy	-	-	-	-		1	-	-	-	-	-	-	-	-	-	-	2	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-		6
76	Jago	♂	Italy	-	-	-	-	1	1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-		6
77	Jeffreys	♂	U. K.	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	1	-		6
78	Jousseaume	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-		3
79	Juba de L'Hôtellerie	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1		2
80	Kobelt	♂	Germany	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-		9
81	Landauer	♂	Germany	-	1	-	-	-	1	-	2	4	3	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	14		15
82	Lawley	♂	Italy	-	-	-	-	1	1	2	-	-	-	-	-	-	1	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	2		7
83	Lessona	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-		3
84	Linnea	♂	Germany	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1		2
85	Locard	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	1	-		7
86	Loescher	♂	Italy	-	-	-	-	-	-	1	-	-	1	-	-	-	-	1	-	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	8		8
87	Major	♂	U. K.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	3	4
88	Maler	♂	Germany/ Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		1

ZOOOLOGIE

	Correspondent	Gender	Nationality	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	Letters and receipts BOX 239	Postcards BOX 239	Letters BOX 51	Letters MZUF	Tot
89	Maltzan	♂	Germany	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		1
90	Manzella	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1		2
91	Marinoni Camillo	♂	Italy	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-		3
92	Marinoni Luigi	♂	Italy	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-		2
93	Martorell	♂	Spain	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-		2
94	Mascarini	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-		7
95	Meli	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-		4
96	Meneghini	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-		2
97	Michelotti	♂	Italy	-	-	-	-	-	7	4	-	-	-	1	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-		14
98	Molteni	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-		4
99	Monjo	♂	Spain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-		3
100	Monterosato	♂	Italy	-	-	-	-	-	-	-	-	-	1	-	-	3	3	-	9	11	2	-	3	6	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	42	-	-		42
101	Morlet	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	8	1	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	-	-		18
102	Morelet	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-		3
103	Mousson	♂	Swit-zerland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-		3
104	Nevill	♂	U.K./India	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	1		6
105	Nolan	♂	U.S.A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		1
106	Otting	♂	Germany	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	1	-		5
107	Pantanelli	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	5	3	10	10	1	-	-	-	-	-	-	-	-	-	-	-	-	-	25	6	-		31
108	Paravia	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1		2
109	Parreys	♂	Germany	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	4		9
110	Paulucci Giuseppe	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-		0
111	Paulucci Paolino	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		1
112	Pecchioli	♂	Italy	-	-	-	-	-	1	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-		4

ZOOOLOGIE

	Correspondent	Gender	Nationality	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	Letters and receipts BOX 239	Postcards BOX 239	Letters BOX 51	Letters MZUF	Tot
113	Pegorari	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1	-		4
114	Pfeiffer	♂	Germany	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		1
115	Pini	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	1	-	-	2	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	-		11
116	Pirona	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-		2
117	Pisani	♂	Italy	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-		3
118	Pollonera	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		1
119	Pons	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	2
120	Ponsonby-Fane	♂	U.K.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	9	6	1	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-		20
121	Ragusa	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		1
122	Ramu	♀	Swit-zerland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1		2
123	Rawson	♂	U.K.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		1
124	Releaux	♂	Germany	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	1	2
125	Rigacci	♂	Italy	-	-	-	-	-	-	2	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-		3
126	Robillard	♂	France	-	-	-	-	-	-	-	-	-	-	-	1	3	5	3	7	7	2	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29	-	2		31
127	Rogers	♂	U.K.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-		2
128	Saint Simon	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	11	4	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	-	-		21
129	Sampson	♂	U.S.A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		1
130	Savy	♂	France	-	-	-	1	8	7	9	4	4	10	6	2	8	3	5	11	10	1	1	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	93	-	3		96
131	Schimper	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		1
132	Senoner	♂	Austria	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-		9

ZOOOLOGIE

	Correspondent	Gender	Nationality	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	Letters and receipts BOX 239	Postcards BOX 239	Letters BOX 51	Letters MZUF	Tot
133	Società Borda	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-		4
134	Soc. Tecnica Ing. Industria	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2		-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	2		2
135	Sordelli	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-		3
136	Sowerby	♂	U.K.	-	-	-	-	-	3	2	1	3	5	2	-	3	2	2	7	5	4	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	34		41
137	Stabile	♂	Italy	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-		2
138	Stalio	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-		2
139	Statuti	♂	Italy	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	5	5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	1	-		13
140	Stoppani	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		1
141	Stossich	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	-	2	-	3	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-		13
142	Strobel	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-		3
143	Studer	♂	Switzerland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-		4
144	Suliotti	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	4	1	-		5
145	Suter	♂	Switzerland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	7	1	-	-	-	-	-	-	-	-	-	-	-	-	-	9	1	-		10
146	Tapparone Canefri	♂	Italy	-	-	-	-	-	-	1	-	-	-	-	-	-	-	4	5	9	2	4	3	2	10	1	-	-	-	-	-	-	-	-	-	-	-	-	-	41	-	1		42
147	Targioni Tozzetti	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	1	-	1	1	4	2	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	1		13
148	Thielens	♂	Belgium	-	-	-	-	-	-	1	1	2	-	-	-	-	6	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-		14
149	Tiberi	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-		4
150	Tipografia dell'Ancora	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1		2
151	Tommasi	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	5	2	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-		14
152	Tournouër	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-		3
153	Tryon	♂	U.S.A.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		1
154	Uzielli	♂	Italy	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-		3
155	Valentini	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-		7
156	Verany	♂	France	-	-	3	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-		6
157	Verdey	♂	France	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	2		2

ZOOOLOGIE

	Correspondent	Gender	Nationality	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	Letters and receipts BOX 239	Postcards BOX 239	Letters BOX 51	Letters MZUF	Tot
158	Verkrüzen	♂	Germany/ U.K.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-		15
159	Vieusseux Julie	♀	Nether-land/ Australia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-		1
160	Vieusseux	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	6		6
161	Vilas	♂	Austria	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-		3
162	Villa	♂	Italy	-	2	3	-	-	3	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	3	7		16
163	Vimont widow	♀	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	8		9
164	Westerlund	♂	Sweden	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4	3	7	3	2	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	23	1	2		26
165	Wetherby	♂	U.S.A.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-		5
166	Ximenes	♂	Italy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-		2
				1	4	11	15	26	54	42	36	37	37	15	7	33	37	44	135	165	115	125	121	137	128	29	1	0	0	0	0	1	0	1	0	0	0	1	0	55	5	23	0	**83**

PALÉONTOLOGIE

Note sur un moulage d'*Allodaposuchus* offert au muséum d'histoire naturelle de Marseille par le baron Nopcsa

Note on a cast of Allodaposuchus *donated to the Natural History Museum of Marseille by Baron*

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MOTS-CLÉS

Reptilia *Crocodylomorpha* *Alladaposuchus* *fossile* *moulage* *baron Nopcsa*

Résumé : Un moulage d'*Allodaposuchus*, offert au muséum d'histoire naturelle de Marseille par le baron Nopcsa (1877-1933), a été retrouvé dans la collection du comte de Gerin-Ricard [1], parmi d'autres fossiles de crocodiliens. Ce don du baron Nopcsa est la seconde contribution [2] du célèbre et fantasque paléontologue hongrois au muséum de Marseille.

KEY-WORDS

Reptilia *Crocodylomorpha* *Alladaposuchus* *fossil* *cast* *Baron Nopcsa*

Summary: A cast of *Allodaposuchus*, donated to the Natural History Museum of Marseille by Baron Nopcsa (1877-1933), was found among other crocodilian fossils in the collection of the Count of Gerin-Ricard. Baron Nopcsa's gift is the second contribution to the Natural History Museum of Marseille by the famous and whimsical Hungarian paleontologist.

Introduction

À l'occasion du rangement des collections de paléontologie, le moulage d'un fossile de crocodilien a été retrouvé au muséum de Marseille. Ce moulage est attribué au genre *Allodaposuchus* décrit par le baron Nopcsa (1877-1933). Il a été offert au muséum de Marseille par celui-ci après sa visite au printemps 1930. Ce moulage en plâtre apporte le témoignage matériel des dons et échanges que les savants opéraient lors de séjours d'étude ou de correspondances épistolaires. Ce moulage apporte également un témoignage matériel de l'état des connaissances sur un taxon du point de vue historique et permet d'en considérer épistémologiquement l'évolution.

Nopcsa, un personnage romanesque

De son nom complet Franz Nopcsa von Felső-Szilvás, Ferenc Nopcsa ou plus simplement encore Franz Nopcsa, est un personnage fort singulier dans l'histoire de la paléontologie (**Fig. 1**). Tout droit sortie d'un roman, sa vie est celle d'un jeune aristocrate argenté de la noblesse hongroise de Transylvanie alors sous domination du vaste empire austro-hongrois.

Brillant étudiant qui excellait en sciences naturelles, en histoire et en langues étrangères, Nopcsa était promis à un bel avenir. Sa qualité de noble dans l'empire d'Autriche-Hongrie lui permettait d'aspirer à ces grandes fonctions que son caractère fantasque et son ambition dévorante espéraient ardemment. Il est envoyé en Albanie en tant qu'agent secret pour espionner et fédérer les Albanais à la cause autrichienne avant et pendant les guerres des Balkans.

Il se prend de passion pour ce territoire qu'il étudie tel un ethnologue et un historien. Lorsque l'Albanie prend finalement son indépendance de l'empire Ottoman, Nopcsa songe sérieusement à en devenir roi. On mesure là déjà tout le caractère excentrique et démesuré du personnage. Il sert l'Autriche-Hongrie pendant la Grande Guerre. L'Autriche ayant été vaincue, sa carrière militaire et politique n'est plus qu'un souvenir. Il revient alors à la paléontologie qu'il n'avait jamais

1. Autre grand donateur du muséum de Marseille.

2. Il décrit des tortues fossiles du Muséum de Marseille en 1931 (Nppcsa, 1931a et 1931b).

Fig. 1a. Le baron Nopcsa en tenue militaire albanaise, anonyme, domaine public. **b.** Nopcsa à droite et Doda à gauche (son compagnon) vers 1931, anonyme, archives du Muséum national d'histoire naturelle de Hongrie. **c.** Portrait de Nopcsa par le peintre hongrois Ferenc Márton en 1926, domaine public.

vraiment quittée. En effet, dès sa jeunesse, il s'est illustré par de nombreuses publications scientifiques sur les dinosaures du bassin de Haţeg (dans l'actuelle Roumanie).

Il s'intéresse également aux tortues et aux crocodiliens de ce bassin du Crétacé.

Sa vie s'achève tragiquement. La chute de l'empire austro-hongrois est un choc terrible pour lui. Les paysans de ses terres de Transylvanie s'étant révoltés contre sa domination féodale, ses ressources ont fortement diminué. Il ne supporte pas leurs révoltes sur des terres où il se comportait tel un seigneur féodal. Ceux -ci ont commencé à vouloir plus de libertés et ont porté physiquement atteinte à Nopcsa en 1921. Homme d'un autre temps, où la noblesse dirigeait tout, il n'arrive pas à s'adapter à ce « nouveau-monde » qui voit l'émergence des démocraties (et des états totalitaires) dans cette Europe centrale perturbée des années 1930. Désabusé, en pleine dépression, il se donne la mort en 1933 et, acte fou autant que révélateur de sa personnalité, il tue son secrétaire, amant et compagnon, Bajazid Elmaz Doda, pour ne pas le laisser démuni et sans ressource. Il l'avait rencontré à Bucarest en 1906 et ne l'avait jamais quitté.

Nopcsa et le muséum de Marseille

Paléontologue prolifique, spécialiste des dinosaures, des crocodiliens et des tortues fossiles de l'Europe centrale, Nopcsa correspond avec de nombreux savants en Europe. Ses recherches sur la faune du Crétacé le font s'intéresser aux travaux du célèbre géologue marseillais Philippe Matheron (1807-1899). C'est donc tout naturellement qu'il se rapproche du muséum de Marseille qui conserve depuis 1901 la prestigieuse collection du savant marseillais. En effet, les fossiles décrits par Matheron (1869), près de 40 ans avant ses propres recherches, lui font miroiter des ressemblances faunistiques entre les fossiles découverts en Provence au milieu du XIX^{e} siècle et ceux découverts et décrits par ses soins au début du XX^{e} siècle en Transylvanie. Il suggère que les environnements du Crétacé supérieur de Provence étaient similaires à ceux du bassin de Haţeg en Roumanie (**Fig. 2**).

Nopcsa prend attache auprès de Louis Laurent (1873-1946), conservateur et directeur du muséum de Marseille entre 1929 et 1940. Il se rend au musée au printemps 1930 (Nopcsa, 1931a). Il se rend d'ailleurs dans de nombreux musées en Europe dans les années 1920 /1930.

Nopcsa va s'intéresser plus précisément aux tortues et aux crocodiliens fossiles de Provence. Il va décrire quelques tortues fossiles qu'il va publier dans les *Annales* [3] *du musée d'histoire naturelle de Marseille* (Nopcsa, 1931a).

Il utilise le moulage interne d'une carapace d'une tortue du Crétacé supérieur provenant du gisement de Valdonne. Le comte de Gérin-Ricard [4] donne cette tortue au muséum de Marseille en 1897. Nopcsa décrit ainsi, en 1931, *Polysternon provinciale* à partir de cette pièce.

3. Les *Annales du Musée d'histoire naturelle de Marseille* sont publiées à partir de 1883. Elles changent de nom pour devenir le *Bulletin du Musée d'histoire naturelle de Marseille* puis pour devenir *Mésogée* .

4. Henry de Gérin-Ricard (1864-1944) est un industriel marseillais et conservateur adjoint du musée d'archéologie de Marseille. Il était propriétaire de tuileries dans le quartier de S^{t} Henri où il organise des fouilles paléontologiques en collaboration avec le muséum de Marseille auquel il remet les fossiles qui en sont extraites (fossiles des argiles de S^{t} Henri).

Fig. 2. Localisation du Bassin de Haţeg dans l'ouest de l'actuelle Roumanie.

Issue des lignites de Valdonne, datée du Crétacé supérieur, *Elochelys perfecta* est également décrite par Nopcsa en 1931. L'holotype est conservé au muséum de Marseille.

Il décrit deux autres tortues fossiles à partir de spécimens conservés à Marseille mais ces descriptions ont été révisées (De Broin, 1977 ; Hervet, 2003) et sont devenues des synonymes d'espèces décrites en amont. Il s'agit de *Elochelys major* = *Polysternon provinciale*.

Le moulage d'*Allodaposuchus*

La pièce consiste en un moulage en plâtre du fémur droit d'un crocodilien (**Fig. 4** ; étiquettes : **Fig. 3**). L'épiphyse proximale est de couleur blanc-crème. La diaphyse et l'épiphyse distale sont noires. Cette différence de coloration renvoie à la pièce originale. En effet, l'épiphyse proximale est une reconstitution en plâtre sur le fossile d'origine. Ce dernier est figuré sur la planche IV, **figure 5** d'une publication de Nopcsa en 1915 (*cf.* **Fig. 4**). Il semble, d'après la publication que deux fémurs d'un même individu aient été trouvés. Nopcsa aurait-il reconstitué le fémur droit en complétant les éléments d'origine du fémur droit avec ceux du fémur gauche ? Il en aurait tiré un moulage reconstituant complètement l'un des deux fémurs, moulage qu'il aura probablement dupliqué pour au moins un don au muséum de Marseille [5]. Les fémurs sont conservés avec le reste du matériel crânien (holotype MAFI ob3131) à l'Institut géologique hongrois, à Budapest.

DON de Mr le Baron Nopcsa
E. 8475
Allodaposuchus affuvelensis
Crétacé supérieur
Localité Valiora (Transylvanie)
(Moulage) MOULLOT - MARSEILLE — Type 41

allodaposuchus cf. affu-
velensis (figuré : M.K.
Földtani Intézet Évkönyve
1915 pl IV fig 5)
Niveau : Cretacé superieure (Danien)
Localité : Valiora ; Prefecture Hunyad
Transylvanie
8475
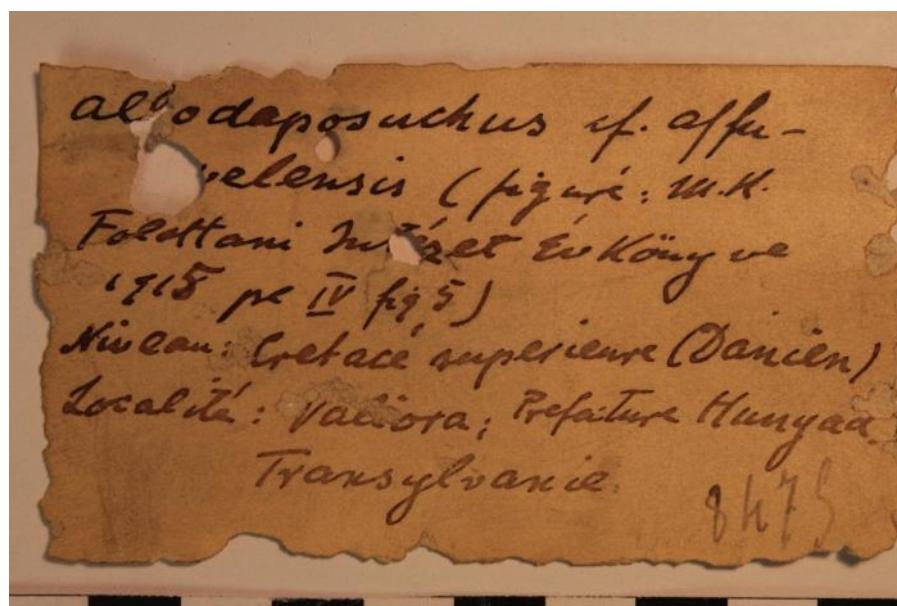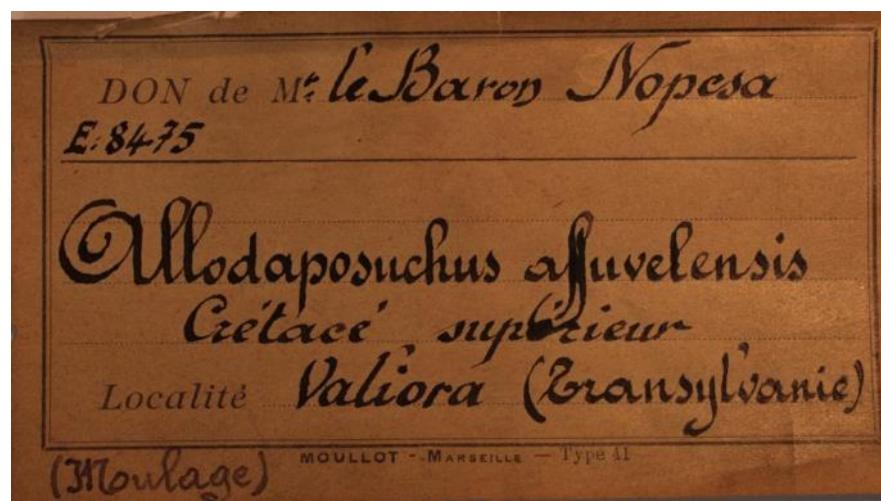
Fig. 3a et b. Etiquettes retrouvées avec le moulage.

5. D'autres envois à d'autres institutions existent-ils ?

Fig. 4. Vues latérales droite (**a**) et gauche (**b**) du moulage de fémur droit du spécimen.
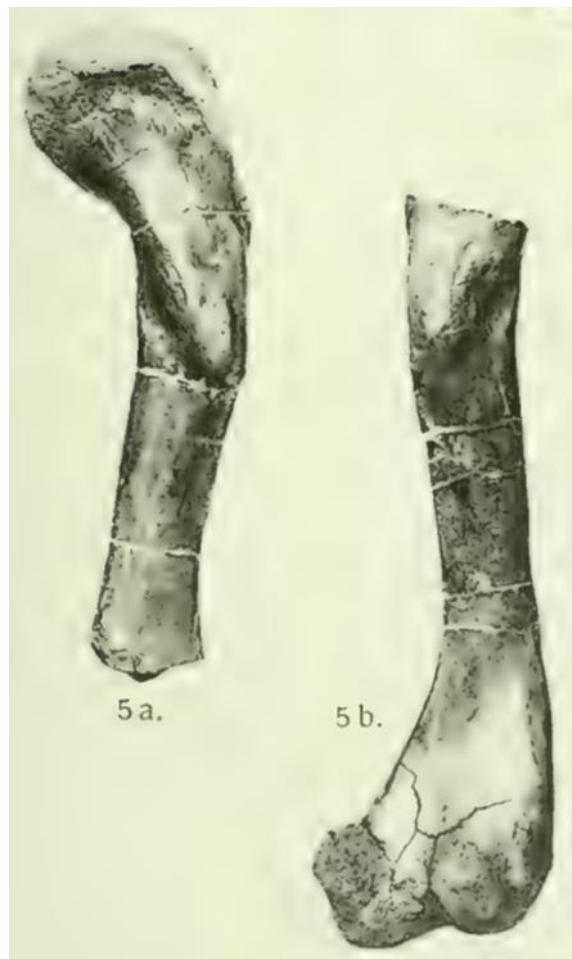
Fig. 5. Les pièces originales figurées dans Nopcsa (1915).

C'est en ces termes que Nopcsa évoque ce crocodilien :

> « *Les restes de lacertiliens et d'oiseaux du Danien de Transylvanie sont encore trop rares pour que des conclusions puissent en être tirées, et il en est malheureusement de même pour les tortues (*Pleurosternum *?) et les crocodiles (*Crocodilus affulevensis *?) à cause du manque de travaux à leurs sujets car la seule chose que l'on puisse dire des crocodiles de Transylvanie pour le moment c'est qu'ils se comparent à ceux du Danien du sud de la France où se trouvent des crocodiles identiques. Les illustrations de certains restes de crocodiles de Valiora peuvent servir de preuve de la présence de vrais crocodiles (tableau IV, fig. 2-5)* [6] ».

Le moulage offert par Nopcsa est inscrit sur le registre des entrées pour le mois de mai 1930. Il y est précisé que ce moulage était exposé dans les vitrines dédiées aux crocodiliens fossiles de Fuveau. En 1930, on trouvait au premier niveau du muséum de Marseille la salle dite Matheron [7] où ces vitrines pouvaient être présentées ou bien la Salle de Provence. Il est difficile de savoir avec précision dans quelle salle étaient placées ces vitrines des fossiles de Fuveau [8].

La pièce mesure 21 cm de l'épiphyse proximale à l'épiphyse distale. Elle mesure 2 cm de diamètre au milieu de la diaphyse.

Le fossile dont est issu le moulage provient de Vălioara, une commune du centre-ouest de la Roumanie. Située en Transylvanie, cette commune se trouve au cœur du bassin de Haţeg. Ce bassin sédimentaire est daté du Crétacé supérieur (Maastrichtien) entre 72 et 66 millions d'années. Il est en cela à peu près contemporain des gisements à dinosaures d'Aix-en-Provence et livre des fossiles similaires (d'où l'intérêt de Nopcsa pour les spécimens provençaux).

Au Crétacé supérieur, le bassin de Haţeg était une île de la mer Téthys (**Fig. 6**). Elle se forme avec le début de l'orogenèse alpine. Cette île était riche en vertébrés (Nopcsa, 1897). Les espèces de dinosaures, ptérosaures, crocodiliens et tortues y étaient variées (Grigorescu, 2005).

Le fossile est probablement collecté par le dénommé Ottokár Kadić en 1914. C'est en effet le matériel récolté par Kadić (Buscalioni *et al.*, 2001) qui sera décrit par Nopcsa en 1915 (Nopcsa, 1915). La région de Haţeg est connue pour ses fossiles de vertébrés depuis 1897 et les travaux du naturaliste hongrois Gyula Halavats [9] (Csiki-Sava *et al.*, 2015).

6. Nopcsa (1915), traduction effectuée via DeepL.com de l'allemand au français.

7. Cette salle faisait doublon avec la paléontologie présentée dans la Salle de Provence mais exposait l'intégralité de la collection de Philippe Matheron jusque dans les années 1950/1960.

8. Actuellement elles sont présentées dans la Salle de Provence.

9. Gyula Halavats (1853-1926) est un géologue hongrois envoyé par le Service royal de géologie de Hongrie pour cartographier la région des Carpathes en Transylvanie.

Fig. 6. Archipel européen à la fin du Crétacé. Modifié à partir de © LastValar
La Provence et l'île d'Haţeg sont localisées.

Systématique

Crocodylia Gmelin, 1789
Eusuchia Huxley, 1875
Alligatoroidea Gray, 1844
Allodaposuchidae Narváez *et al.*, 2015
Allodaposuchus Nopcsa, 1928
Allodaposuchus precedens Nopcsa, 1928

En 1915, dans la description initiale, Nopcsa propose d'affilier ce fossile aux crocodiliens décrits par Matheron en tant que *Crocodilus affuvelensis* (Matheron, 1869). Il propose, en 1928, le genre *Allodaposuchus* et y place le fossile sous le nom *Allodaposuchus* cf. *affuvelensis* (Nopcsa, 1928). Nopcsa, dans la même publication suggère cependant la création d'une nouvelle espèce pour ce fossile qui deviendrait *Allodaposuchus precedens* (Nopcsa, 1928).

> « Allodaposuchus nov. gen. *est étroitement lié au genre* Crocodilus, *mais diffère de* Crocodilus *par la relation de l'ouverture frontale à l'ouverture temporale.*
>
> *Le génotype de ce nouveau genre est l'espèce décrite et figurée en 1915 et est représenté par un ensemble d'ossements du Danien de Valiora en Transylvanie. Les restes comprennent entre autres le sommet du crâne et des parties de l'atlas et de l'épistrophée. Le sommet du crâne est construit comme chez* Leidyosuchus, *l'atlas et l'épistrophée comme chez les Crocodilinae alliés à* Crocodilus *et non comme chez* Alligator *et ses alliés.*
>
> *L'espèce elle-même semble être, pour autant que j'aie pu le recueillir à la fois des données littéraires, des figures et des comparaisons, identique à la forme décrite par Matheron sous le nom de* Crocodilus affuvelensis *du Danien du Sud de la France. L'absence de l'atlas et du sommet du crâne dans les restes représentant cette dernière espèce rend douteux que l'identification de la forme transylvanienne, figurée et mentionnée pour la première fois en 1915, avec la forme française à laquelle il vient d'être fait référence soit vraiment correcte à la fois du point de vue générique et spécifique. La congruence évidente des parties que l'on trouve dans les deux spécimens indique qu'elles sont identiques, et c'est pourquoi j'hésite actuellement à donner à l'espèce transylvanienne un nouveau nom spécifique. Je m'y réfère donc sous le nom d'*Allodaposuchus *cf. ?* affuvelensis *Matheron 1869 (Nopcsa 1928), soulignant toutefois que si les deux formes en question s'avéraient pourtant spécifiquement distinctes, le nom générique* Allodaposuchus *doit être retenu pour l'espèce transylvanienne que je désigne ci-après comme constituant le générotype. Pourvu qu'à l'avenir une différence spécifique soit jamais établie entre l'espèce française et l'espèce transylvanienne, je pense que cette dernière pourrait être nommée* Allodaposuchus precedens. *Le nom générique et ce nom spécifique semblent donc appropriés car ils soulignent le fait que ce Crocodilien "moderne" de l'époque danienne est un précurseur de cette nouvelle faune terrestre asiatique de vertébrés qui a fait irruption en Europe au début de l'Eocène. La possibilité de l'entremêlement d'*Allodaposuchus *avec le reste de la "faune sauvage" de l'Europe déjà à l'époque danienne était évidemment simplement dû au fait que les crocodiles sont de bons nageurs et donc, comme toujours, parmi les premiers nouveaux arrivants sur les îles océaniques isolées.*
>
> *Les règles controversées de nomenclature qu'il fallait prendre en considération pour renommer le Crocodile de Transylvanie ont été traitées selon les conseils donnés, comme dans le cas du* Deuterosaurus, *par le baron G. Fejèrvâry. C'était d'autant plus nécessaire que même selon son expérience, la question complexe de savoir comment appeler le crocodile de Transylvanie est jusqu'à présent unique. Le terme générotype, proposé par Dudich et d'autres, est employé pour remplacer l'ancien terme génotype tel qu'utilisé par les systématiciens américains et autres et opposé au terme génotype tel qu'utilisé dans la recherche sur l'hérédité [...].* »

Les révisions faites en 2001 (Buscalioni *et al.*, 2001) et 2008 (Martin & Buffetaut, 2008) se basent sur le matériel crânien essentiellement. Ces révisions vont dans le sens de Nopcsa et tendent à confirmer l'existence spécifique de *Allodaposuchus precedens* (Nopcsa, 1928) qui se démarque de *Crocodilus affuvelensis* lui-même d'ailleurs révisé par J. Martin et E. Buffetaut (Martin & Buffetaut, 2008) en *Massaliasuchus affuvelensis* (Matheron, 1869).

Conclusion

Les moulages en paléontologie sont des pièces d'un grand intérêt. Trop souvent négligés au prétexte qu'ils ne sont pas des « vrais » fossiles, ils sont des témoins de l'histoire de la paléontologie et des interprétations qui ont été faites au cours des différentes périodes sur un spécimen donné.

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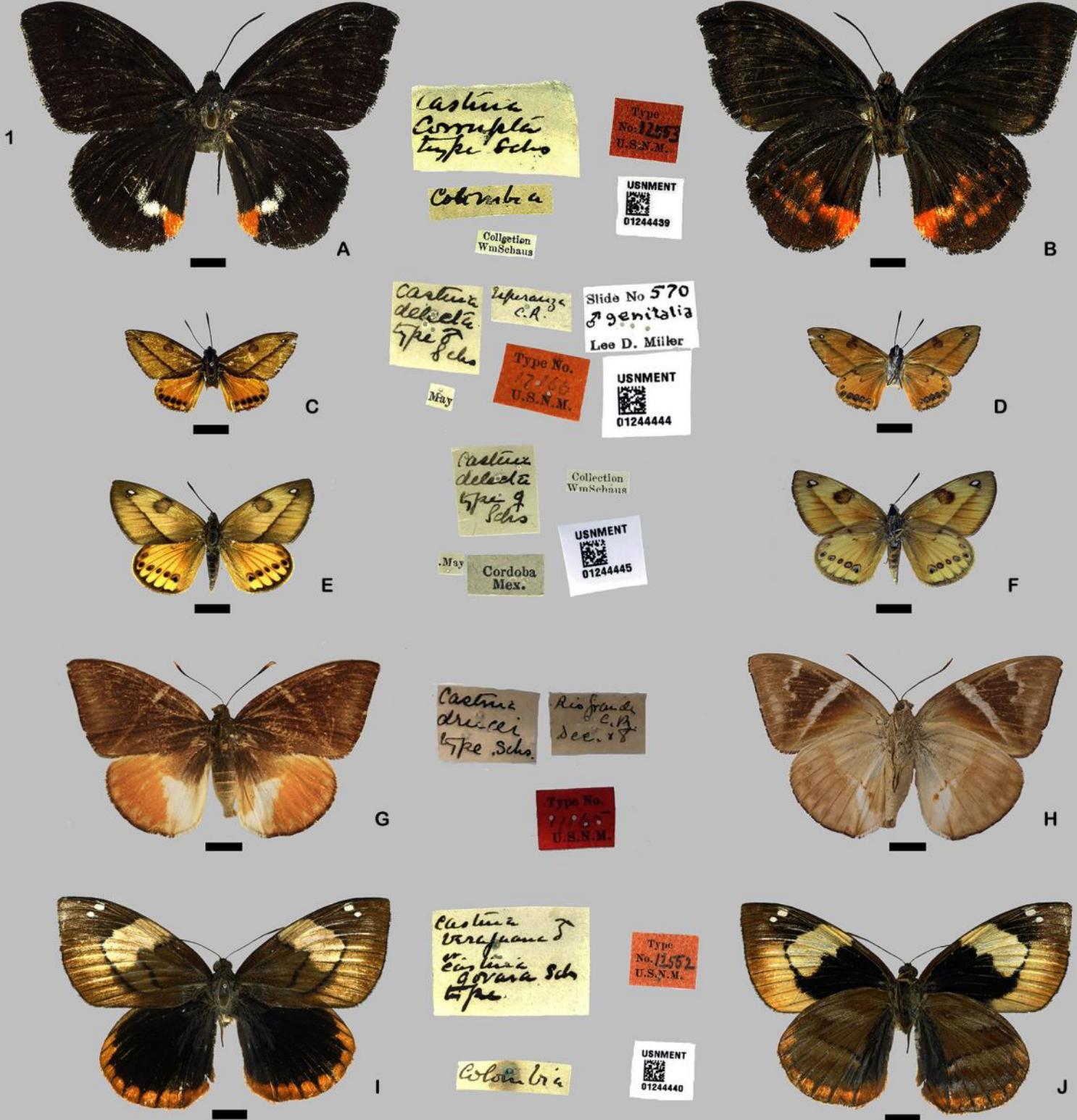
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Image de 4^e^ de couverture : Types of Castniidae in the Smithsonian Entomology Collection, National Museum of Natural History (Washington, D.C.). © Jorge M. González.